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HEINRICH SCHENKER'S EARLY THEORY OF SCALE-STEP

BY

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A THESIS

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ABSTRACT

One of Heinrich Schenker's contributions to the study of music was the introduction of psychology into the discipline of music theory. His recognition of the limits of human perception caused him to hold that only the first five partials of the partial series were available to the ear as units which could be cognized. These partials, when abbreviated, yield the major triad. The major triad was held by him to be the naturally given sonority upon which art music is based.

The minor triad was seen by him as a derivative from the major triad. This derivation is a psycho-acoustical phenomenon in that the ear suffers an alteration of the major third to the minor third without the character of the third or the "third quality" being lost. So it is that the minor triad is based on the major triad with a modification permitted by our perceptual powers. Because the minor triad is a modification of the major triad and does not involve a substantial change, it is possible to combine major and minor characterizations without affecting the tonality. The central governing tone increases the domain of its influence by this process of combination.

Various biological analogies were used by Schenker to illustrate the actualization of the potential of the tone to be an organizer of tones other than itself.

His theory of Stufen (Scale-Steps) is another variant of the principle of the tone's actualization. Whereas the scales and mixtures derive from the actualization of the potential of individual tones in the chord of nature (or its permissible modification, with the minor third instead of the major third in the triad), the

Stufen actuate this potency of the tones of the chord of nature, as a whole. The triad, as a unit, is the source of organizing power, harmonically.

When a Stufe other than the tonic acts as the harmonic orienter of a passage, it has the tendency to be regarded as a tonic. When this tendency is yielded to, and the Stufe is given a tonic-like status, the process of Tonicalization has occurred. This is effected by chromaticism. Chromaticism here is the bringing into the diatonic system of tones foreign to the pure major-minor system. By bringing them in via tonicalization, an orderly inclusion is wrought. By being organized in this way, the power of the central tone is further increased as its domain is enlarged, and the potential of the central tone, as the organizer and determiner of events in a musical work, is actuated.

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Explanatory Note

All references to Schenker's Harmony (see fn. 2) are indicated by page numbers in parentheses within the body of the text. Asterisks in the examples quoted from Harmony are Heinrich Schenker's. Those in examples not quoted from Harmony are this author's.

CHAPTER ONE: INTRODUCTION

The facts concerning Schenker's life no less so than his theories are disputed. Sonia Slatin discusses the variants and disputes of his biography in detail.[1] The discussion will be limited here. He was born in either 1867 or 1868 in Poland and emigrated to Vienna around 1890 and remained there until his death in 1935. He never had a formal post at a University and did all of his teaching privately. He was a prodigy on the piano and toured Eastern Europe. In addition, he composed but gave that pursuit up in favor of his theoretical investigations.

His main quarrel with the music theory being taught at the time, and the difficulty he sought to eradicate, was the sense of cleavage between the theory taught and the music of the masters. He cites his teacher, Bruckner, as being guilty of this approach and severely reprimands both him and that approach:

> My teacher, a composer of high renown, used to say on such occasions: "segn's, mein' Herrn, dass is die Regl, i schreib' natirli not a so"--which, in Austrian dialect, means: "look gentlemen, this is the rule. Of course, I don't compose that way." What marvelous snarls of contradictions! One believes in rules which should be laughed at; one pokes fun at them rather than ridicule one's own belief in them! And if there are rules which lack any reasonable sense--whence they ought to be considered nonexistent--and if, for this very reason, a relationship, let alone a contrast, between that alleged rule, on the one hand, and art, on the other, is out of the question, how odd is it to behold this or that individual assuming the pose of a hero who allegedly transgresses the rule! Can there be heroism more amusing, more lacking in substance? If they only knew how whatever they write, even in their most audacious moments, is deeply rooted in rules and norms, albeit quite different ones![2]

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[1] Sonia Slatin, "The Theories of Heinrich Schenker in Perspective" (Unpublished Ph.D. dissertation, University of Columbia, 1968), Chapter I.

[2] Heinrich Schenker, _Harmony_, transl. Elizabeth Mann Borgese, ed. and

This passage speaks for itself. The dedication to the music of the masters in terms of theory meant for him dedication to finding those principles of art that actually explain what goes on in a piece of music. He believed that the study of music theory is more than just something one must suffer through learning as a useless exercise, but rather that it is the way to understanding the masters. And theory must be such that it provides the key to the understanding of those works. This exerpt shows the fundamental question he pursued all his life, viz., "What are the deeply rooted rules and norms that a composer follows even in his most audacious moments?"

His search began with the Harmony and his discovery of the scale-step as founded on a sense of long range hearing. His refining of the concept of long-range hearing culminated in his theory of Urlinie-Ursatz. The purpose of this essay will be to examine some aspects of his early harmonic theories that show this sense of long range hearing and to interconnect them.

The idea of long range hearing has a root in the phenomenon of our perception of musical tone which has, in turn, its consequences in his later idea of (as Allen Forte calls it) "structural levels."[3] The idea of hearing long range, or hearing in units which extend beyond the immediate moment, is in a sense already this idea of "structural levels." But most commentators, and Forte is no exception, deny

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annotated by Oswald Jonas (Chicago: University of Chicago Press, 1954), pp. 177-178.

[3] Allen Forte, "Schenker's Conception of Musical Structure," Journal of Music Theory, III (1959), 4

the basis Schenker sees for his theories in the perception of musical tone, while on the other they are the first to defend his theories on the grounds that they reflect the actual things heard in pieces of music, i.e., have a basis in the perception of musical tone. This blatant, contradictory stance is the result of taking the consequences of his theories as valid yet denying their basis. For example, Schenker saw his idea of the supremacy of the triad as the naturally given sonority of nature as an unalterable part of our psychology[4] and developed his theory of scale, scale-step and tonicalization on that basis. The reason why he could conceive of the scale-step is his recognition of what he saw as a not-to-be questioned fact, namely, the triad as the chord of nature. Well-meaning theorists take the concept of the scale-step and convert it from its "ingrained" or "natural" status to one of hermeunetical significance only. The discussion given by Schenker on the indigenous status of these (and other) ideas is palmed off as "acoustical or metaphysical formulations."[5] Not only does this do injustice to the fact that these "speculations" permeate his entire output, but injustice is done to his most significant point of departure from previous theorists, which is the introduction of the psychology of hearing into theory. One cannot simultaneously agree with his theories and then deny the basis that makes them possible. Therefore, part of the task of this essay will be to argue for their connection.

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[4] See Chapter Two of this essay.

[5] Forte, "Schenker's Conception...," p. 4.

CHAPTER TWO: THE SOURCE AND SIGNIFICANCE OF THE TRIAD

Sonia Slatin has rightly pointed out that the contrasting approaches of Rameau and Schenker to the problems of music are not new in their essence but have their origin in the ancient world of Pythagoras and Aristoxenous.[6] In light of this it will be helpful to state briefly some of the principles that are involved in this ancient contrast of positions to more accurately frame the reference. Aristoxenus was an Aristotelean. He studied with Aristotle and almost succeeded him, which is some indication of the proximity of his thought to Aristotle's. Among Aristotle's chief contributions to knowledge were the science of logic and the definition of what a science is and how it differs from other pursuits. This is an important point to pursue for even the name for musicology in German (Musikwissenschaft) translates as "the scientific method as applied to music." So, to frame the question "What is a music theory?" an investigation into the nature of scientific knowledge is warranted.

The necessity for this kind of thought can be clearly seen in a concrete example. Take the problem of the "rule" for the Common Practice period that parallel octaves and parallel fifths are to be avoided. This is a more or less generally agreed upon rule for good voice leading. Yet the literature abounds with "exceptions" which do not seem to affect the quality of the voice leading. Chopin's Fantasy and C.P.E. Bach's Prussian Sonata No. I both contain examples:

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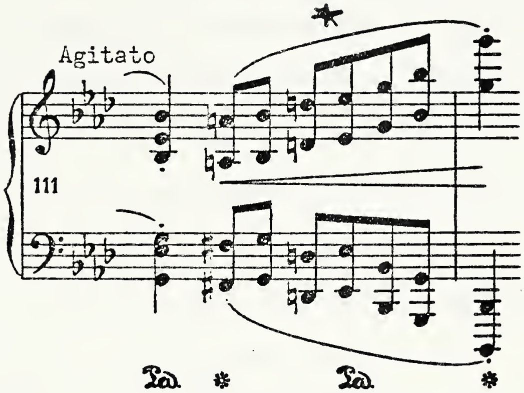
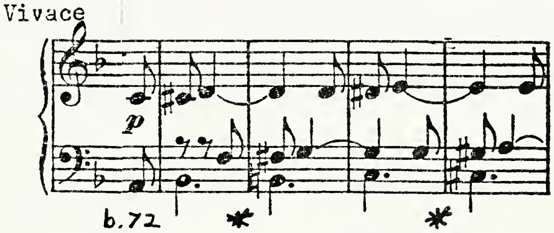
[6] Slatin, "...Schenker in Perspective," Chapter Two, esp. pp.30-31.

Example 1.. Chopin's Fantasy and C.P.E. Bach's Prussian Sonata No. I





In both of these examples the rule is apparently broken, yet audibly there is no weakness in the voice leading. The point of the examples is to show that simple observation does not account for the exceptions; some principle that goes beyond observation is necessary, for, in spite of the apparent exception, it is generally agreed that successive fifths and octaves are not acceptable within the common practice period. How is it that the prevalence of the rule and the acceptability of the exceptions are reconciled? This is a question that must be answered by a systematic body of knowledge, i.e., a

science, which is not observational alone in its technique but identifies the cause which permits and delimits certain possibilities.

Causes can be either historical or scientific. Historical causes explain events by "tracing their development,"[7] whereas scientific causes weave "large numbers of phenomena into a coherent system by means of principles..."[8] which show the "connexion of universals."[9] Schenker, as a theorist, was concerned with the latter view of causes with respect to music.

In setting up a formal system, one does not start in mid stream but rather one starts at the beginning with the axioms of the science. The first principles of a science must meet three conditions. They must be true, primary and indemonstrable, and prior to the consequent.[10] Differences between theoretical approaches can be discussed in terms of their first principles. There are four major categories in this domain.

What differentiates these four is what role the properties of sound and the properties of human cognition play in the formation of the axioms of their systems. A subjective approach, as exemplified by John Cage, denies the role of either factor. For him, there is nothing inherent in the nature of sound or the human intellect that necessitates any principles by which to judge the operation of material. "You see there are always sounds...there are no special sounds."[11]

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[7] H.W.B. Joseph, An introduction to Logic (London: Oxford University Press, 1906), p. 77

[8] Ibid., p. 468

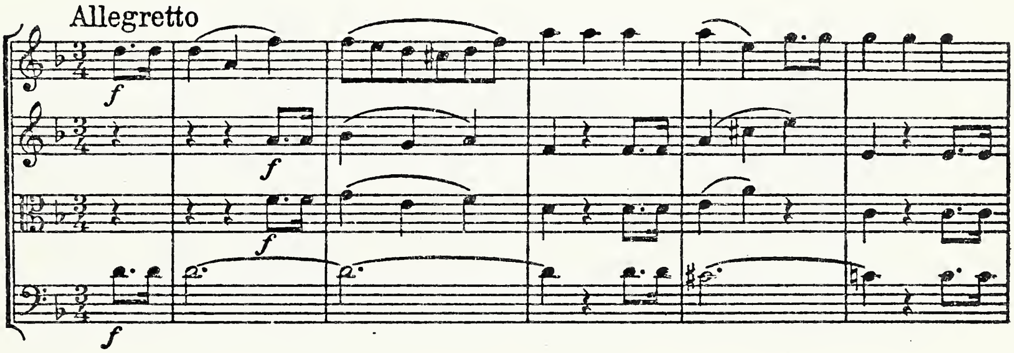
[9] Ibid., p. 77

[10] Aristotle, Posterior Analytics, 71b9 ff.

[11] John Cage, "An Interview with John Cage," Contemporary Composers on Contemporary Music, ed. Elliot Schwartz and Barney Childs (New York: Holt, Rinehart and Winston, 1967), pp. 340-341.

An intrinsic view seeks the principles of music in the material only without regard to human consciousness. The Scholia Enchiriadis[12] and the works of Rameau exemplify this view. Rameau's idea of a fundamental root progression,[13] which has been likened to a kind of mechanistic determinism in music,[14] often creates the paradoxical situation where a typical and straightforward passage from the literature[15] is "analyzed into incoherency" by applying fundamental root precepts.[16]

Example 2. Mozart, String Quartet, K. 421, Minuet.



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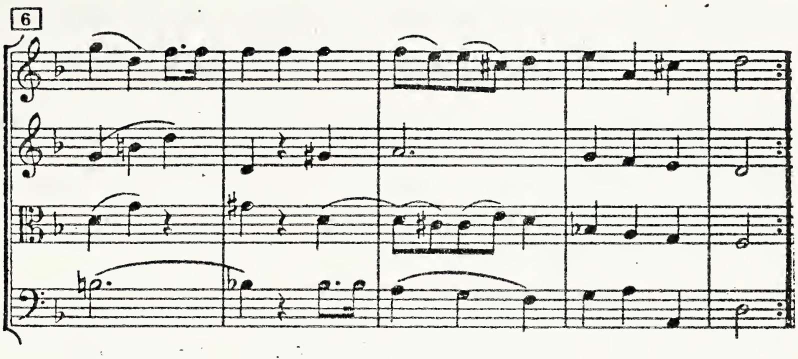
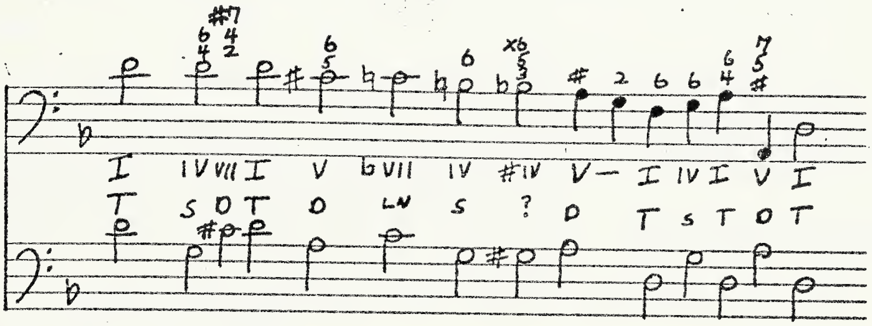
[12] Oliver Strunk, editor, Source Readings in Music History: Antiquity and the Middle Ages (New York: W.W. Norton, 1965), pp. 131-137, esp. p. 137.
[13] Joan Ferris, "The Evolution of Rameau's Harmonic Theories," Journal of Music Theory, III (1959) passim.
[14] Slatin, "...Schenker in Perspective," p. 28.
[15] Other examples would include many popular ground basses such as those found in Monteverdi's Lamento della Ninfa from the Eighth Book of Madrigals, the "Crucifixus" of Bach's B minor Mass, and Beethoven's 32 Variations in C minor for Pianoforte.
[16] If the succession of roots is interrupted, the causal series has been broken and the piece, theoretically, should become incoherent. This is evidently not the case and is a weakness of this viewpoint. See also the discussion of the I_4^6 and dominant pedal in Chapter Five.

(Example 2. continued...)



Example 3. Example 2. reduced to a figured bass with traditional root analysis and functions.


I IV vii I V ♭VII IV #IV V — I IV I V I
T S D T D LN S ? D T S T D T

(See the appendix for a counter analysis of this excerpt.)

The complexities involved in applying this kind of approach[17] to late Romantic music, and the fact that any tone can be generated from the harmonic series,[18] led Schoenberg to abandon this approach and impose the limitations from without. Babbitt, following him, ardently denies any natural basis for music and substitutes complexity and consistency for it, i.e., products of the human mind only without

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[17] See Hugo Riemann, Harmony Simplified, or Theory of the Tonal Function of Chords, transl. H. Bewerunge (London: Augener and Co., 1895).

[18] Joseph Rufer, Composition with Twelve Notes, transl. Humphrey Searle (London: Barrie and Jenkins, 1954), p. 46.

regard to the materials[19] except as vehicles for manipulation.[20] His point is that the laws governing music are conventions we establish.[21] Henry Pleasants asserts the same point of view.[22]

These views must ultimately collapse into a subjective viewpoint[23] (fundamentally unprincipled) because of their failure to relate the two aspects of music in the axioms of their systems. If these two were established as co-dependent factors[24] then a music theory would be inextricably bound to them both, and none would suffer undue neglect.

Schenker[25] sought to establish such a basis. His theory of harmony is based on an interaction between our perceptual faculties and the overtone series. He was not the first to set a "scenario" for the

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[19] Milton Babbitt, "The Structure and Function of Musical Theory," in Perspectives on Contemporary Music Theory, ed. Benjamin Boretz and E. Cone (New York: W.W. Norton, 1972), p. 10.

[20] Milton Babbitt, "Who Cares if You Listen?" Contemporary Composers p. 245.

[21] Milton Babbitt, "Twelve-tone Invarients as Compositional Determinantes," Problems of Modern Music, ed. Paul H. Lang (New York: W.W. Norton, 1960), pp. 108 ff.

[22] Henry Pleasants, The Agony of Modern Music (New York: Meridian Books, 1955), p. 127.

[23] If the overtone series is used to generate the available tones for a musical system, and if human perception does not delimit the series, then all tones have equal weight and validity. The problem then becomes in what way should the tones be ordered. If not from without, then from within, i.e., arbitrary choices for systematic purposes. The fact that it is an arbitrary choice undercuts the systematic aspect leaving the arbitrary, i.e., the subjective.

[24] "Co-dependent" here means that each factor is a necessary condition, but neither is in itself a sufficient condition. Each factor contributes to the formation of the axiom, but neither is subordinate to the other. Both are needed to form the basic principle. In this way, the basic principle would incorporate both factors without one being asserted at the expense of the other.

[25] This takes place in Chapter 11 of Schenker's Harmony and is one of the most criticized passages in his work. But it is a crucial passage because it is on the basis of this chapter that he refers, in the rest of his writings, to the triad as the "chord of Nature."

basis of music on the first 5 or 6 partials. Theorists from Zarlino to Schenker have built some or all of their systems of harmony or analysis on it. The identification of the harmonic series dates back to Pythagoras[26] and most theorists have insisted upon limiting its role to the first six partials (the seventh partial allegedly introduces a "dissonance"). As to why this should be so, explanation is usually wanting or is taken for granted.[27] Schenker's reasons for limiting the overtone series to the first six partials are psychological in their origin but are never fully substantiated and are treated as an irreducible phenomenon needing no further commentary.

Jonas, who is Schenker's most sympathetic critic, states that "the argument might have been more convincing if it had been restricted to a consideration of the generally valid and essential law of abbreviation rather than extending to the 'mysterious' number 5, a concept that is bound to remain more or less doubtful."[28] The assertion of a numerical relationship or determinate of some kind is not necessairly an indication of numerology.[29]

It has been noted in countless experiments, and can be verified introspectively, that the perceptual range of all animals is limited.[30] Their ability to discriminate, remember and deal by purely perceptual means with units of any kind is limited in number. Without counting, but rather sensorily, by simply looking at a row of books on a shelf, one cannot tell how many are there unless there are only

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[26] See Thomas J. Mathiesen, "An Annotated Translation of Euclid's Division of the Monochord," Journal of Music Theory, XIX (1975).

[27] Schenker does not offer a full proof of this point.

[28] See note 17 in Harmony p. 26.

[29] See Chapter 14 of the Harmony and Chapter III below.

[30] Cf. Ayn Rand, Introduction to Objectivist Epistemology (New York: The Objectivist Inc., 1967), p. 57.

five or maybe six books. Our powers of perceptual-mathematical ability do not extend beyond this limit. We can hold or grasp five or possibly six units at most "in a single glance," as it were. After this limit has been reached, there is "many." That is, our discriminatory abilities produce a sequence that goes: 1, 2, 3, 4, 5, (6), many.[31] Schenker similarly notes that

> The five-line structure of the staff reveals a wise accommodation to the demands of the eye. One need only imagine a system of six or seven lines to realize immediately that the eye would find it difficult to make a speedy and sure decision as to whether a note is located, for example, on the fourth or on the fifth line (p.25).

And the author would add from his own experiences with ledger lines and from observing flautists, that beyond the 5th or 6th ledger line it is not possible or practical to simply observe and equate notation with sound, but rather it must be marked or memorized in some way that bypasses the simple perceptual experience. Examples of this kind can be multiplied at length in both our every day experiences and in the refined practices of our art.[32]

Consequently the citing of the number of 5 as being of some significance as a determinate in various practical affairs is not mystical or numerological in character, but stems from a naturally given limitation of our mental powers; specifically, of our powers of perceptual discrimination, i.e., of our ability to grasp and hold units perceptually. It should come as no surprise that this same limitation

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[31] Ibid.

[32] Any account of why this is so is really beside the point for this is an inherent limitation of our faculties. It may be the case that this inherent limitation of our faculties is why we only have 5 or 6 senses (if one counts equilibrium). Our brain can handle only 5 or 6 different kinds of data. Were this otherwise, a different set of conclusions would be necessary; but it is not.

operates in other senses as well, e.g., hearing.

"The sounding tone is acoustically not simple, rather--like light--[it is] a complex structure...."[33] But this does not mean that our ear is able to grasp perceptually, as described above, the whole complex structure. On the other hand, it does not deny the availability of the whole complex structure either. By this is meant that while we do in fact hear differences caused by leaving out or removing certain overtones as far away as the hundreds (as in the case "sul tasto" on string instruments, or turning on the treble filter in an amplifier), this does by no means imply that we can grasp overtones as far away as the hundreds and hold them as units before us. Like in the example of the bookcase given earlier, if it is filled with a hundred books and then half are removed, one can easily perceive that about half of the books have been removed. But this in no way implies that originally we perceived one hundred units and held them discriminated and remembered them as one hundred units and that now this number has been reduced to fifty. Perceptually, we would only have been aware of "many" books then and "half-as-many" now. This is easily verifiable. And similarly with overtones generated by any tone, it is not that we are unaware of the distant partials, for we are, but rather that any more than 5 or 6 partials cannot be grasped perceptually in the manner described.

> It should be clear now what is meant by my observation that it may be a wonderful, strange, and inexplicably mysterious fact, but a fact, nevertheless, that the ear can penetrate only up to the fifth division (26).

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[33] Oswald Jonas, Einführung in die Lehre Heinrich Schenkers (Vienna: Universal Edition, 1972), p. 14 "Der erklingende Ton is akustisch nicht einfach, sondern-wie das Licht-zusammengesetz...."

The author would only add that it is not mysterious or strange but an irreducible primary fact of human perception.

To briefly summarize: the phenomenon of sound is the result of an interaction between the sound waves and the aural faculties. They are co-determinates of this phenomenon. Each contributes something different from the other but each is equally fundamental. The properties of tone set the basis for interpretation by the properties of the perceiving organ. The powers of the perceiving organ are limited to a perceptual grasp of 5 or 6 units (this does not deny awareness of the 7 ff. partials but denies explicit perceptual grasp in the manner described above). This is an irreducible primary fact of human perception, and is why the ear can penetrate only up to the fifth or sixth partial. *This* is why the triad is the chord of nature and the objective basis of music as a tonal art.[34]

Schenker's originality of thought does not lie in his exclusive use of the first 5 partials, for many before have cited this basis. What is daring, new, and utterly original about his thought is his recognition that this perceptual grasp of the first 5 partials forms the link between nature and art and that it not only governs moment to moment successions of sounds/chords (depending on the era) but forms a "permanent" backdrop or constantly re-iterated perceptual premise of an entire work from beginning to end and all that happens

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[34] For a completely contrary view and criticism see Milton Babbitt, "Past and Present Concepts of the Nature and Limits of Music," *Perspectives on Contemporary Music Theory*, ed. Benjamin Boretz and E. Cone (New York: W.W. Norton, 1972), *passim*.

in between. It is only because he recognizes this "perceptual grasp" that he could say:

> Each composition is the composing out [Auskomponierung] of a triad [Klanges] , it progresses from a background-basic structure via prolongations and diminutions to a foreground structure.[35]

It must be understood that the existence of something does not necessitate that it is understood, let alone understood fully, or, in a different vein, understood conceptually. In the first place this explains why tonality did not spring "fully grown from the head of Zeus" but rather developed slowly step by step over the centuries. And in the second, this explains why composers could use or obey these ideas while not once being explicitly aware of them. For example, before the phenomenon of gravity was ever named and defined (explicitly grasped) it was used and people were aware of it. So too with music.

And so too with music theory. The phenomenon of the overtone series was understood and used by theorists prior to Schenker but its relation to tonal art, i.e., a "permanent" perceptually grasped backdrop of a triad composed out, remains his achievement. He was the first to systematically and fundamentally grasp this explicitly. All his major concepts from Stufen, to Urlinie to Auskomponierungszug to Ursatz, to consonance, transformation of dissonance and so forth, are but a translation into conceptual terms of the perceptual grasp of tone.

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[35] Quoted in Jonas, Einführung, p. 112 "Sache des Komponisten ist die Auskomponierung eines Klanges, sie führt ihn von einem Hintergrund-Ursatz über Prolongationen und Diminutionen zu einem Vordergrundsatz."

The grasp of the perception of tone as founded in both human faculties and the physical properties of tone (as described above) will yield the premise that is true, primary and indemonstrable, and which is prior to the consequent. This gives an answer to the question of how we are to have an unqualified scientific knowledge (i.e., have a theory) of music. That premise is the supremacy of the triad. The discovery of its manifestations was Schenker's life work and supreme achievement.

CHAPTER THREE: MIXTURES AND THE MAJOR-MINOR SYSTEM

In the preceding chapter it was shown how Schenker uses the limit of the overtone series as the first five tones or partials and that these must then form the basis of our understanding of music as a tonal art. In his discussion of "The Origin of Tonal Systems" (the first section of his Harmony) he divides the discussion into three main headings, viz., The Natural Tonal System (Major), The Artificial Tonal System (Minor), and The Other Systems (Church Modes). In short, the first five partials give the natural basis of the major system and for that reason it is called "natural". The minor system is a system which is modeled upon the major system but is a human artifice in its origin. We shall have cause shortly to examine what is meant by his statement that "the feeling for the major mode [is] the ultima ratio--how every passage in minor yearns to be resolved into major, and how the latter mode absorbs into itself nearly all phenomena"(54). This fundamental cleavage between major and minor modes is what causes him to classify the Lydian, Mixolydian, Dorian and Phrygian as "other systems" for each has the basic characteristic of being either major or minor. More important than this reducibility of all other systems to being either major or minor in basic characteristic is his idea of the reducibility of all systems and relationships of tones to the government by one tone:

> Properly speaking, I think that any composition moves in a major-minor system. A composition in C, for example, should be understood as in C major-minor ($C\frac{\text{major}}{\text{Minor}}$); for a pure C major, without any C minor ingredient, or vice versa, a pure C minor, without any C major component, hardly ever occurs in reality (pp.86-87).

In fact, this idea of one tone governing all the relationships in a composition, as well as a system, is pregnant with implications that were only gradually realized by him over the years. One important step to this full realization was Schenker's idea of the major and minor being characterizations of a tone, i.e., of the triad generated by a tone.

By the mid-18th century the minor triad was recognized as a consonant in its own right. Before that, it was considered a mildly dissonant interval. In the first volume of J.S. Bach's The Well-Tempered Clavier, all the preludes and fugues written in the minor end with the so-called "Picardy third." In the second volume of this work published some 22 years later in 1744, the issue is not entirely as cut and dried. There exists, in the preludes, a decided mixture of major and minor endings for those written in the minor mode. Six minor preludes (c, c-sharp, d-sharp, f, g-sharp, b) have endings in the minor; four (d, f-sharp, g, b-flat) have endings in the major, i.e., with the Picardy third, and two end in bare octaves (e and a). The fugues in this second volume, like the preludes, show a similar diversity in that they end either with a Picardy third or with bare octaves (with the possible exception of the c minor fugue which has a minor ending which does exist in a major form in one edition only).[36] Seven have Picardy thirds and four have bare octaves. From this can be inferred at least a tendency, or, better, a reluctance to negate, even if only peripherally, the effect of the minor character.

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36. Hans Bischoff, editor, Das wohltemperierte Klavier (New York: Edwin F. Kalmus, undated), Vol. II, p. 11, note 12. Se also the Preface for comments on the manuscript referred to in "note 12."

The fact that there are four fugues which do not have Picardy thirds shows at least that the minor flavour of these works is wanted preserved and uncontradicted. This also marks the beginning of the complete independence of the artificial mode from its (even if only token) dependence on the major mode.

In the classic-romantic era the Picardy third is rarely found. When there is a change from minor to major (as is often the case, especially in the earlier part of this era) there is no simple raised third. Rather, preference is given to establishing the overall major character of the work or that section of the work. Examples such as Beethoven's Fifth Symphony, Mozart's G minor String Quintet and Piano Quartet spring readily to mind. Even in works where there is a continuous fluctuation between major and minor characterization, or where one is used as a contrast against the other, the author knows of no case (and if there is one, it is exceptional) where other than a clear resolution into one of the two characters prevails. In Mozart's Rondo A La Turk, K.310, there is a continuous alternation between major and minor, yet the piece ends firmly in the major.

Even in cases that are more difficult to assess, such as Beethoven's Piano Sonata Op. 111, the major ending of the first movement is felt (in the end) as more than just a Picardy third. It is more than just a token dispensation of consonance and is, rather, a real dispersal of the tensions of the whole movement. In short, with all of these examples from the classic-romantic era, the use of a major ending to a piece written in the minor mode is a dramatic

or aesthetic one which seeks to establish the character of the major mode. Its use is no mere token consonance.

There are two conclusions that can be drawn from the foregoing discussion. The first is that the major and minor modes are two different characterizations of a tone. The other is that the major and minor tonalities are quite strongly related to each other even if different. Note that in all the foregoing discussions of pieces in the minor ending in the major, it is the so-called "tonic major" that they end in, and not the so-called "relative major," again indicating that it is one tone, plus or minus its diverse characterizations, that governs a work. This is in accordance with the idea presented in the previous chapter of the triad as the naturally given sonority that we grasp in the sounding tone and the musical artwork as an extension of that grasp.

William J. Mitchell, when discussing the relationship between the partials and music, states:

> The octave of a tone is considered to be its transposition or duplication; the perfect fifth dominates and controls most musical relationships; the major third is a basic characterizing interval.[37]

One could add that the minor third is also a characterizing interval, though the question of whether or not it is basic will be discussed later. That the third is a characterizing interval, should be well established. Thus it should be evident that what diversifies the major and minor mode is the character interval of the third, but on the other hand, what unifies them is what

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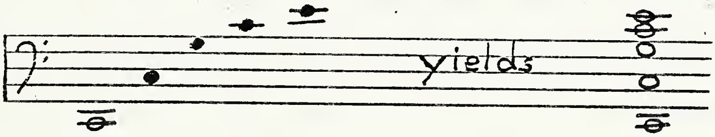
[37] William J. Mitchell, Elementary Harmony, 3rd edition (New Jersey: Prentice Hall, 1965), p.2.

they are characterizers of: the tone.[38] That is to say, that the tone, and its relationships, is basically coloured by the major or minor quality.

Having briefly indicated how the major and minor are two colours or characterizations of the tone, Schenker's arguments for the naturalness of the major and the artificiality of the minor modes and their relationship will now be examined. The discussion of the perceptual grasp of the first five (or six) partials in the previous chapter should be kept in mind as it is the basis for this discussion.

For Schenker, the major system is the natural system. It is based on the major triad which is the naturally given chord of nature.

Example 4. The First Five Partials of a Tone and the Resultant Chord



Schenker notes that the fifth is more powerful than the third (p.26) for it enjoys the "right of primogeniture" and as such is the "yardstick of the composer." This is no incidental statement on his part and should be scrutinized. It is on this basis that he erects the rest of the major system. The characterizing function of the third

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38. The same point is made by Allen Forte in his Tonal Harmony in Concept and Practice (New York: Holt Rinehart and Winston, 1974) in sections 4 and 6. It should also be noted that the acoustical fact that gives rise to this diversity of characterizations is another irreducible phenomenon in that we hear both major and minor thirds as being both relationships of a third to the fundamental note. It is in a way like colour; we grasp both crimson and scarlet to be shades of red, i.e., diverse characterizations or shades of the same colour. As to why the major characterization was used at the end of pre-classical works in the minor, see Hermann Helmholtz On the Sensation of Tone (New York: Dover, 1954), p. 295c.

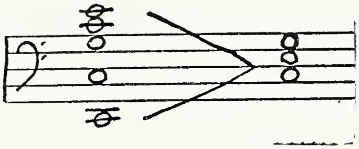
has been duly noted, but one additional observation should be made. The third is open to alteration whereas the fifth is not; the third can be either major or minor and still retain its characterizing function. Even though the quality of the third is altered, the listener still experiences a third relationship.

This is not the case with the fifth. No alteration of any kind is permitted else its relation as a fifth is destroyed. If the fifth is either augmented or diminished, it is no longer aurally understood as a fifth. This limitation imposed on the manipulatibility of the fifth has a corresponding advantage. As it is a fixed sonority, and more a fixed relation to the root tone, its absolute stability makes it the "primary and most natural" relationship between any two tones (p. 29). This is why, like the first born son, it enjoys the "right of primogeniture" (p. 26). And it is this very stability that makes the fifth a more powerful relation than the third. And, finally, the stability and absoluteness of relation to the fundamental is what makes the fifth "the yardstick of the composer" (p. 26).

The natural overtone series cited above (Example 4.) extends into three octaves. And although it is often used in this form and even is the reason why certain spacings between bass and tenor voices, but not (say) alto and soprano, sound good, there is another factor that enters and has a certain effect on the arrangement of tones. That factor is the range of the human voice (p. 28). He notes that in the face of the restricted range of the human voice "as determined by nature," the artist had "no choice but to create an image in reduced proportions of the over-life-sized phenomenon of

Nature" and "...withdrew into the space of one octave" (p.28). The artist reduced the five-note chord of nature to a three-note chord which penetrates only one octave instead of three.

Example 5. Abbreviation of the Six Note Chord to a Triad



In this way the natural principle of the first five overtones is converted into an artistic principle. For, in doing so, "we have complied with the demands of nature. For we have followed the most potent overtones 3 and 5 to obtain a consonance whose character is obviously determined by them," and yet at the same time this reduction is guided by the "vocal principle" which marks "the beginning of Musical art" and is also a "determining factor" in other respects (p.28).

This idea of the conversion of a natural principle into an artistic principle is worth dwelling on for a moment. As was seen in the last chapter, the natural phenomenon of the overtone series gave the first five partials to the availability of our ears on the principle of the limit of our perceptual powers. This in itself is not an artistic principle but a natural principle, the cause of which is the nature of our hearing or the way we experience sound and our ability to hold, discriminate and deal with, perceptually, the partials as individual elements. As was pointed out, this is a fixed and unavoidable conclusion and outside our volitional control. We can no more will ourselves to consider the 7th ff. partials as available perceptual discriminatory units than will the atomic structure of a substance to

be available to the direct perception of our eyes. In short, this is a matter beyond our volitional control. As such, it is a natural principle of hearing with no artificiality or manipulation imposed upon it from us.

Something quite different is involved in the reduction of the five-note sounding of nature to a three-note artistic principle. Schenker "recommends" that we consider this major triad as a "conceptual abbreviation of Nature" (p. 28). The fact is that in this five-note sounding of nature, there are only three tones which are of different pitch classes. The extraction of these three tones from the natural five is not a perceptual process but rather is the conceptual grasp of the essence of this five-note structure. The conceptual grasp of the essence of the five-note sounding structure yields the triad: a conceptual abbreviation of the natural sounding available to us perceptually.

More than this, however, is the principle of the relationship between nature and art. For it is not a simple copying of nature that produces art even in terms (here) of the most rudimentary material. What is involved is a conceptual grasp of the naturally given which is then manipulated or used to convey its essential characteristics. The first five partials are here abbreviated or grasped conceptually and then used to convey the essential characteristics of the partials.

Schenker goes on to give some examples in other arts of the principle of abbreviation with which some analogies to tone can be shown. For example, "the dramatic author abbreviates the

events of his plot... as the musician abbreviates the tone spaces and compresses the acoustic phenomena"(p. 28). Just as in drama, we would find it pointless to be presented with every single detail of the protagonist's day (given that it is a classical drama) from how he had trouble finding his shoes under the bed, and how he did this and how he did that, if these events did not add some essential and new factor or aspect to the drama. Similarly, the repetition of the three partials 1, 2, and 4, while they do act to reinforce, do not add in essence to 1 since we experience them as being of the same pitch class. Thus in accordance with the principle of abbreviation they are reduced to the one tone. Similarly with 3 and 6. This is the first step in the abbreviation of nature.

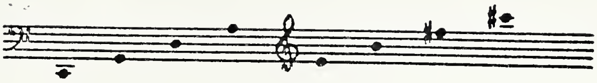
Now, the second step, the compression of the first, third and fifth partials into an octave space is the result of a different principle than the one that permits us to extract these three tones from the naturally given five. It is no less a natural principle than the one which limits our perceptual grasp of the partials to five or six, yet it is somewhat different. The original five partials penetrate into three octaves. But the fact is that all pitch classes occur within the space of one octave. Thus it is possible to hold all pitches within the space of an octave. And it is here that Schenker introduces two arguments as to why this ought to be done, i.e., why the three extracted tones(extracted from the five naturally given tones in the partials) should be condensed, compressed or abbreviated into the space of an octave.

The first argument is the one already encountered, namely the

principle of abbreviation. The reduction of the three octave penetration to a single octave can be seen as simply a "conceptual abbreviation of nature" (p. 28). And in addition to this he states the "range of the human voice as determined by Nature is restricted" (p. 28) so this is all the more reason to abbreviate. Hence the triad.

To discover the origin of the non-triad tones in the major system, Schenker notes that every tone "is the bearer of its generations and... contains within itself its own major triad" (p. 29). But as the third of each triad has as its main function characterization and whereas the fifth has been seen to be a stable and absolute relationship between any two tones, then "it will also remain the most natural if applied to more than two tones" (p. 29). This, in conjunction with the premise that every tone "is the bearer...," produces a sequence of tones which shows a "relationship of fundamental and permanent validity" (p.29). Each tone is capable of producing its own series of partials, and given the limitation of the ear, virtually "contains within itself" the potency to generate a five-note sonority which by the principle of abbreviation is understood as a major triad. But as the third is a variable and not firmly fixed interval, and thus functions as a characterizer rather than as a stable absolute relation, it is the fifth, which is absolute, that enters into a natural and firm relationship with any tone. It is a sequence of ascending fifths that is the most natural series of relationships between tones, hence, the fifth is viewed as a relationship of "fundamental and permanent validity." The sequence it produces is as follows:

Example 6. Schenker, p. 29



Indeed, the sequence could be extended to include all twelve tones. But again, Schenker calls upon "human perception" to impose a limit upon the extent of the series up to the 6th generation, i.e., from the C up to the F-sharp. Jonas reiterates this position:

> The connection between tones under one another is given from nature as a connection of fifths....Following the route to the further removed fifths...giving 6 generated fifths [by which he means C up to F-sharp, for he does not count the C as "I" which he must, otherwise C is excluded from perception, and thus the system].[39]

And then, after some discussion, Schenker calls upon the principle of inversion to supply the F (pp. 38-40). As Jonas notes in a footnote in the Harmony:

> The lower fifth, F, obtained through the process of inversion, constitutes, so to speak, the anchor securing the system against unlimited drifting into more remote upper fifths. The lower and the upper fifths establish the C as the center of the system, a phenomenon which constitutes the very basis of cadencing.[40]

And again in his "Einführung", Jonas notes that "Schenker calls this process Inversion, the production of a fifth relationship in a reverse direction."[41]

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[39] Jonas, Einführung, pp. 18-19. "Die Beziehung der Tone untereinander is von der Natur als Quintbeziehung gegeben. Verfolgen...die Wege zu den entfernteren Quinten weiter....Bereits dis sechste Oberquint..."

[40] Schenker, Harmony, footnote #19, p. 30.

[41] Jonas, Einführung, p. 19, "Schenker nennt diesen Vorgang Inversion, die Herstellung einer Quintbeziehung in umgekehrter Richtung."

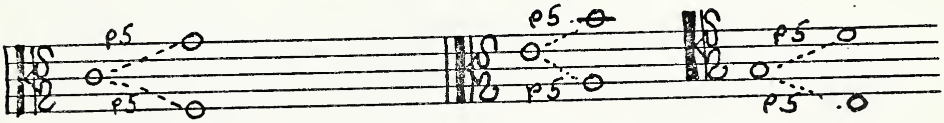
It would seem that there are two arguments being presented here in order to complete the major scale. One is based on the generation of fifths, which always means the upward generation of fifths given the numerous times he takes offense to the assertion of an "undertone series," which many before him had used to establish the subdominant. The other is based on the permanence and fixedness of the fifth relationship which gives stability to a relation of tones. The idea of the fifth below, f below C, as "anchoring" the C securely from below, and the G above C, as "anchoring" it from above (to extend the analogy) is of a different order than the argument based on the generation of fifths. Each argument will be discussed in turn.

In the first place, one must object that by the time one has reached an actual triad, C-E-G, it is no longer a purely perceptual phenomenon but is in fact a "conceptual abbreviation of Nature." The triad is a conceptual integration of the 5 or 6 partials available to the ear, and, being such, can generate no further relationships of a purely perceptual nature. A cycle of upper fifths is not available to our perception in the same way that the partials are. The cycle of generated fifths is not something that we can literally grasp with our ears. On the basis of perception alone, it is **not** fifths that we grasp but twelfths. Grasping a fifth is grasping a "conceptual abbreviation" and must be treated as such. It is a grave logical fallacy to attribute to relationships which are primarily conceptual, the power of generating relationships that are pre-conceptual.

The other argument based on the fixedness of the fifth

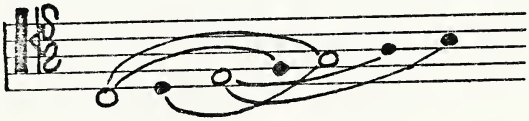
relationship has much more to offer in the way of overall stability and coherence. This is so primarily because, on the one hand, these fifths are not generated relationships but "artistic adaptations," as it were, and, on the other, "anchor" the primary tones of the triad. They do this by establishing stable relationships (perfect fifths) above and below the tones of the triad:

Example 7. The Triad Tones and their Upper and Lower Fifths



and yield the pure major scale:

Example 8. The Tones C, E, G, and their Fifths as a Scale



The result is a scale based on the horizontalization of the triad plus other tones that do not contradict any of the triad tones (with tritones). The other tones confirm the stability of the triad tones by entering into relationships of a fifth with them. In this way, not only is the tonic "anchored," but the fifth and the third are also duly anchored.

With the exception of the F, these tones form a series of perfect fifths above the tonic as was noted in Example 6. Schenker places great store in the argument for generated fifths in a series with the alteration of the interval from B to F-sharp to a B to F granted for the artistic purpose of anchoring the whole system.

But as was shown earlier, this argument is specious. The approach which simply extends the idea of "anchoring" the tonic to all of the three primary tones is much more fruitful.

This also is indicative of the relationship between nature and art. For Schenker, music as an art is not a direct copy of nature or the naturally given. Rather it is based upon a precept given in nature which is grasped and manipulated or adapted.

> Nature's help to music consisted of nothing but a hint, a counsel forever mute, whose perception and interpretation were fraught with the gravest difficulties....This hint, then was dropped by Nature in the form of the so-called "overtone series" (p.20).

In other words, the overtone series is the basis of the major-minor system, although the series is not the determiner of every aspect of the system. The overtone series merely serves as a guide, and the major-minor system is an adaptation or extension of the principles inherent in it. That, in conjunction with the idea of the stability of the fifth which "constitutes for the artist a unit by which to measure what he hears,"(p. 28) produces the above argument on "anchoring" each of the triad tones with fifths. The stability of the triad tones is measured by the inclusion of perfect fifths above and below those triad tones, thereby securing for them a stability that would be lost without them.

The playing of the major scale demonstrates the superiority of securing the triad tones by upper and lower fifths rather than the circle of fifths (with a single alteration). One does not hear the D as the fifth above G when the sequence C-D is played, nor does one hear the E as the fifth above the A which is a fifth above

the D, etc., when the sequence C-D-E is played. Nor does one hear the F as the diminished fifth above B, etc. when the sequence C-D-E-F is played. When the sequence C-D-E-F-sharp is played, one immediately hears the tritone contradicting the C thereby destroying the stability and fixedness of the C. This would indicate that the securing of the primary tones by fifths and not the cycle of generated fifths with an exception is the real key to understanding the major scale.

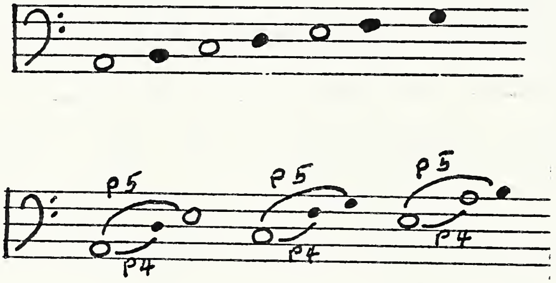
The other relationship, the descending cycle of fifths from B to C, is a facet of the relationships set up by the scale in which the primary tones are anchored by upper and lower fifths. And all the other observations made in this regard by Schenker in this section (in particular, the tritone relationship between B and F) are certainly valid points to make but cannot be applied as fundamental aspects of the major and minor systems. But, on the other hand, the principle of "anchoring by fifths from above and below" can be applied to both systems in their pure unmixed forms thus demonstrating its more fundamental applicability.

In discussing the nature of the minor system, Schenker continued to hold that the major system is the model upon which the minor system is erected as an artistic adaptation. The major triad is the naturally given sonority, but it is also a fact that the third is not a perfect interval and can be inflected and not lose its character as a third. This has been discussed above. As the major triad is the model of all chords, and the minor triad is seen as an inflected form, so the major system is the model of all systems, and the minor system is seen as being only an inflected form of it. Thus:

> those principles which we have examined in some detail with regard to the major mode, apply with equal validity to the minor system. In so far as those principles are concerned, the major and the minor modes behave in absolutely identical ways (p.46).

Schenker notes that in harmonic sequences, the root progressions of the minor follow those of the major. A cycle of root progressions by a descending fifths in the major is paralleled, in the minor, by a cycle that follows the same root-tone sequence. He cites (pp. 47-48) the first eight measures of Brahms' Op. 117, No.2. The bass sequence is I-IV-VII-III-VI-II-V-I. Also in the pure Aeolian minor, the only tones that differ from the major are the third and its upper and lower fifths. The anchoring fifths of the tonic and dominant remain untouched in both.

Example 9. The Pure Minor Scale and the Minor Triad Tones with Their Upper and Lower Fifths



At any rate, Schenker sees these things as proving that the minor system is an adaptation of the major; that the principles of scale-step progression have been transferred artificially "nay, forcibly, from the major mode, out of this necessity," and for this reason the "natural mode is no doubt superior to the minor mode" (p. 48). It should be noted that Schenker calls the major tonal system the "natural" tonal system and the minor, the "artificial." As noted,

there is a good deal of artificiality involved in the major system in that only the triad is naturally given, and the other tones in the major scale or major system are derived by fifth relationships from these three primary tones of the triad. So when he says "the natural system" he means that the essence of the system, the major triad, is naturally given and not artificial in any respect. It is derived from the limits of our perception of tone. The other tones are to be seen as adjuncts that confirm these by the strongest relationship between tones that is possible, viz., the perfect fifth.[42]

In this respect, the minor triad is no different from the major. The other than triad tones are generated by fifth relationships. The sole difference lies with the minor third. The acceptability of the minor third lies not with pure acoustical phenomenon per se, but with the irreducible fact that we perceive the minor third as an inflected form of the major third. We hear both as thirds, albeit of different character. The use of this phenomenon is at once natural in the sense that it is an unalterable aspect of our perception of musical tone; it is artificial insofar as it is not given in the partials available to us from the sounding tone. In this sense the minor triad, and its manifestation in the pure or Aeolian minor scale with the lowered third, sixth and seventh (the lowered third and its correspondingly lowered upper and lower fifths), is a modification applied to the major system, but in accordance, nonetheless, with the limits of our musical perception. For the ability to regard

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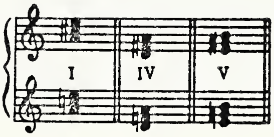
[42] While the octave is technically the strongest possible relationship between tones, within the octave the fifth only is applicable.

the minor third as a third is a naturally given limit of our musical perception. But as the minor third is not given in the partials, to use it and base a system upon it is not naturally given, but derived, and hence, as a system, it is artificial.[43]

One of the interesting consequences by way of contrasting these two systems is the utter permeation of the major and minor character (respectively) into chords built upon the tonic and its upper and lower fifths. Building these chords out of tones available in the pure scales one finds that in the major mode, major triads appear on the tonic, and its upper and lower fifths, and conversely in the minor mode, minor triads on the tonic and upper and lower fifths:

Example 10. Schenker, p. 49



At this point in his Harmony, Schenker gives a series of arguments as to why the church modes are tonally unsuitable. Which is to say that from the viewpoint of classical tonality, the modes other than the Ionian and Aeolian have certain properties that render them, in their pure form, incapable of serving as the basis for a tonal system. A system is "an assemblage or combination of things or parts forming a complex or unitary whole."[44] A tonal system, then, is an assemblage or combination of tones forming a unitary whole. The

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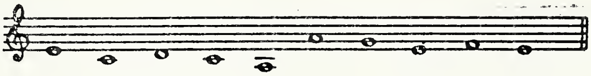
[43] cf. Harmony, section 23, esp. p. 49.

[44] Laurence Urdang, Editor in Chief, The Random House Dictionary of the English Language, College Edition (New York: Random House, 1968).

question is, in what way do tones assemble or combine into a unitary whole and what kind of "whole" is it? And further, what is the source of the "unity" in the "unitary whole?"

Part of this question has already been dealt with insofar as it has been shown that Schenker sees the basis of music being the triad, and all other tones besides those of the triad are used in some relationship to it. By using the triad as the basis of music, in general, he obviously thinks of tonality as the norm of music. This is contrary to the idea of modality in general, which is a series of relationships between tones which all relate to one central tone. This difference can be seen quite clearly by considering the following excerpt from Schenker's Harmony:

> This may explain the well-known fact that the modes, in their original form, were concerned only with the horizontal direction, i.e., with the melody....For, the concept of harmonic clarification, whether in the horizontal or in the vertical direction, was totally alien to the ancient system. A cantus firmus, like the following:
>
> 
>
> could be accepted as Phrygian merely on account of its opening and closing note, E, while our instinct for harmony certainly would place it in the Aeolian system.[45]
>
> A long period of progressive development was needed for the artistic instinct to mature to the point where it could also reflect the harmonic point of view in the melody itself (p. 137).

With ears accustomed to "thinking" in terms of major and minor tonalities, this cantus quite clearly sounds as though it ends on the dominant of the Aeolian minor. The tones of the melody either outline or

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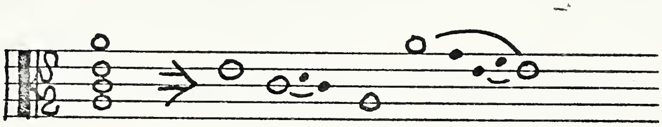
[45] This cantus is taken from Fux. See Joseph Fux, The Study of Counterpoint, transl. and ed. Alfred Mann (New York: W.W. Norton, 1943, rev. 1965).

revolve around the A minor triad and thus give the overall impression of being a horizontal expression of that triad. This is what is meant by the "concept of harmonic clarification" in this instance:

Example 11. The Harmonic Clarification of a Phrygian Melody by an A Minor Triad



Yet this example given by Fux as a Phrygian melody because of its beginning and end tones is heard as an Aeolian melody when considered triadically. This sharpens the main difference between tonality and modality; tonality is concerned with the relationship of all tones to a central chord whereas modality is concerned with the relationship of all tones to a central tone. As the central or key tone is the E, modally this melody must be considered a Phrygian melody. But as the melody revolves around the a minor triad, tonally this melody is an A minor melody. Modally, what gives this melody direction is its departure and return to the tone E. Tonally, what gives this melody direction is it outlining of the A minor triad.

Generalizing from this, one can say that what gives tones a unitary whole with respect to modality is their relationship to the beginning and end tone. What gives tones a unitary whole with respect to tonality is their relationship to the beginning and end chord. In compositions written purely in one tonality, the beginning and end chord (or governing chord in more complex cases) will be the one which defines the relationships of all the other tones and/or chords.

Thus, the prime difference between tonality and modality is what it is that acts as the basis for the definition of the relationships of all other tones in the system. If all other tones are governed solely by their relationship to a single tone, then the system is modal. If, on the other hand, they are governed by a chord, then the system is tonal.

There are numerous other differences between modality and tonality that this distinction gives rise to. Bukofzer notes that harmony in the tonal era was concerned with the regulation of the succession of chords, whereas in the renaissance, "harmony was restricted to the regulation of intervallic combinations. The progressions from any one combination to any other...were dictated... by the melodic laws of part-writing."[46] Indeed, it might be best to characterize the melodic motion in general as being a progression to the finalis and say that the chordal formations produce merely a succession of consonant vertical structures which are the accidental products of voice leading. Before Zarlino there was no clear conception of the chord.[47]

There are two distinct, though not unrelated, arguments put forward as to why the modes fell into disuse. The one is a historical argument and the other is a normative argument. The historical argument is that as tonal systems the various modes have one or the other of major or minor characterizations and so multiplicity of this kind is unnecessary. And as will be shown below, the various modes

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[46] Manfred Bukofzer, Music in the Baroque Era (New York: W.W. Norton, 1947), p. 12.

[47] Helen E. Bush, "The Recognition of Chordal Formation by Early Music Theorists," The Musical Quarterly, XXXII (1946), 227-243.

had some deficiencies that could not be incorporated or used as the basis of a chordal system, viz., the tritone relationships with the primary tones of the triad, diminished triads on the anchoring tones of the tonic (i.e., the sub-dominant and dominant), and chords of different characterization on the tonic, dominant and subdominant. In other words, with respect to setting up a unified and consistent tonal system (a system of chords and chord relations) the modes proved to be unusable as the basis of such a system--with the exception of the Ionian and Aeolian modes.

The other argument is a normative argument in that Schenker argues that the modes were "Experimental Steps of Practical Art" which "constitute inevitable stages of development" towards tonality (p. 58). Tonality is seen as the quintessence in the development of musical art to which monody and modal polyphonic writing were but experiments; "Experiments, naturally, from our point of view, it was the compositional method of that time."[48] The full grasp of the major triad, the chord of nature, and its full working out represents the end or goal to which all other developments must be subservient.

Looking at the upper and lower fifths of the principal tones of the six modes, and the chords on their tonics and upper and lower fifths, the Dorian, Phrygian, Lydian and Mixolydian systems are seen to be impractical as bases for a tonal system. Only the Aeolian and Ionian are adequate.

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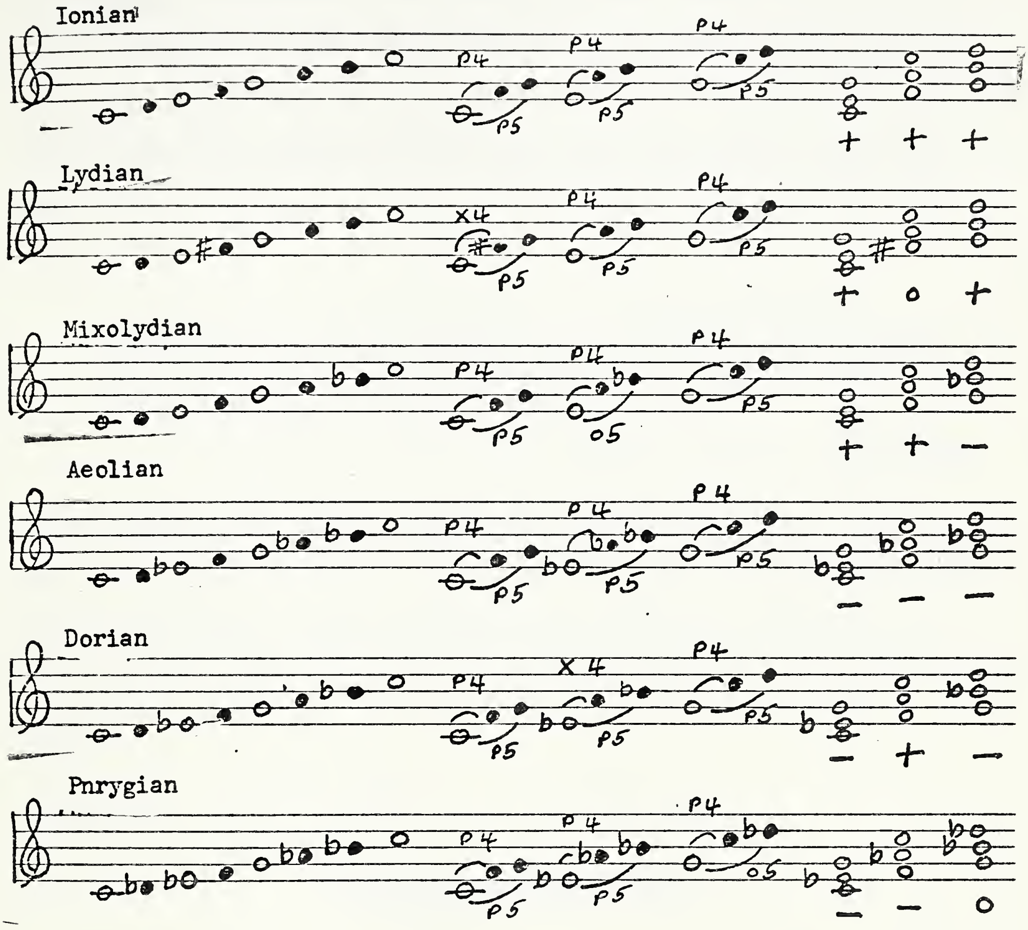
[48] Jonas, Einführung, p. 25."'Experimente' naturlich von uns aus gesehen, es waren die Kompositionsversuche jener Zeit...."

Example 12. The Modes, the Fifths of the Triad Tones, and the Triads on the Tonic and its Upper and Lower Fifths.



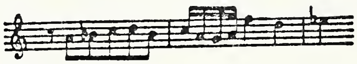
As can be seen from the above chart, only the Ionian and Aeolian modes have consistent quality triads on the tonic and its upper and lower fifths so that all three chords are of the same respective kind. And only in the Ionian and Aeolian scales are the principal tones (the triad tones) anchored, as it were, by perfect fifths above and below. The Lydian has an augmented fourth (C-F-sharp) about the tonic, the Mixolydian has a diminished fifth about the mediant (E-B-flat), the

Dorian has an augmented fourth about the mediant, E-flat-A, and the Phrygian has a diminished fifth about the dominant, G-D-flat. Only in the Aeolian and Ionian modes are all the principal tones confirmed by perfect fifths (or not denied by tritones) and only in the Ionian and Aeolian does the character of the tonic chord pervade the upper and lower fifths' chords. In the others, the distribution is irregular

> In the Phrygian and Lydian scales we are faced with the emergence of diminished triads, on the dominant in the former, on the subdominant in the latter-situations totally alien to both the major and minor systems (p. 55).

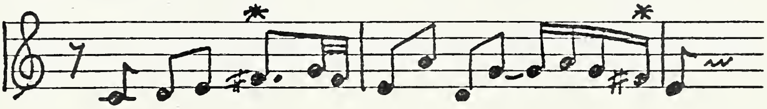
And if this were looked at in the context of motivic repetition at the fifth as in , say, a fugue, the repetitions in the Phrygian and Lydian modes "would fall all of a sudden into the Procrustean bed of the diminished triad, a position which would be altogether insufferable" (p. 56). He gives an example involving the Phrygian Mode:

Example 13. Schenker, p.57



to show how disruptive the diminished triad effect of the A to E^b would be in this subject drawn from Bach's D minor Fugue from The Well-Tempered Clavier, which could be extended also to the Lydian mode with its diminished triad effect, here, on the sub-dominant:

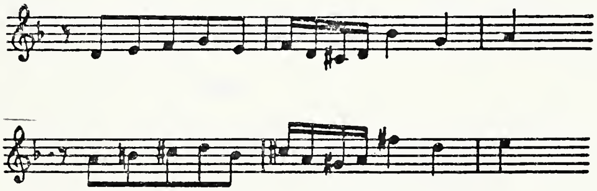
Example 14. Lydian Interpretation of Bach's Well-Tempered Clavier
Vol. I, No. I



In each of the two above cases the tritone relationship between the A and E-flat and the C and F-sharp is, to say the least, jarring and felt as "unnatural" (p.57). This indicates that the Phrygian and Lydian are "unusable from the point of view of motivic exigencies"(p.57). And the utter contradiction in character provided by the Mixolydian's lowered third on the dominant, from the viewpoint of melody, no less than the tritone of the Phrygian and Lydian modes, makes it unsuitable.

> The following example may elucidate how these same motivic considerations, which, first of all, led to the creation of the minor triad itself and subsequently encouraged the formation of minor triads also on the dominant and the subdominant, thus completing the minor mode in its present shape.

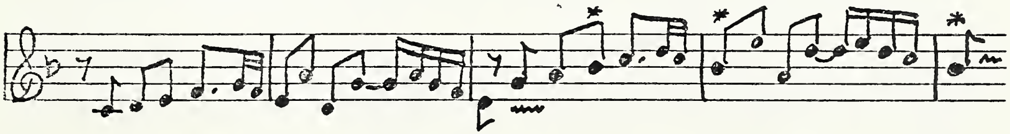
J. S. Bach, *Well-tempered Clavier*, I, Fugue, D Minor:



(p.50)

While this example shows the discrepancy of going from a minor character into a major character, the reverse can be quite easily imagined, or seen as follows:

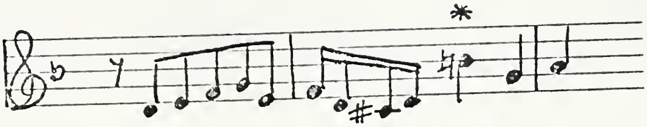
Example 15. Major to Minor Interpretation of Bach's Well-Tempered Clavier, Vol. 1, No. 1



This also reinforces what was said at the beginning of this chapter about the character quality of the third. No less similar in its jarring effect is the sixth of the Dorian mode. The strange and contrary character that enters when a subject in the minor uses the

(Dorian) raised sixth makes it unsuitable in a tonal system:

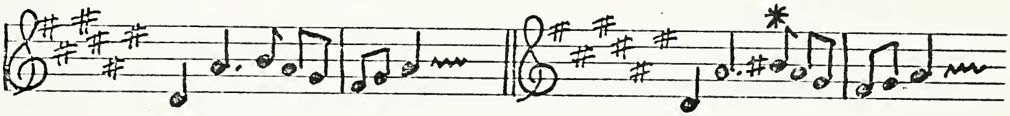
Example 16. Dorian Interpretation of Bach's Well-Tempered Clavier, Vol. 1, No. 6



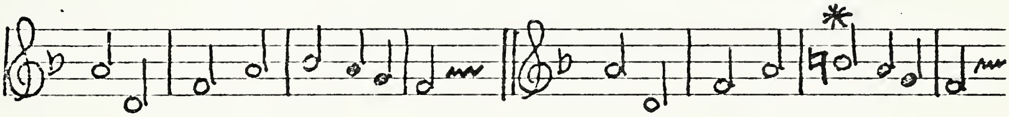
Or for that matter, consider the lowered sixth degree in any one of hundreds of baroque fugue subjects employing the sixth in the minor rewritten for the Dorian mode with the raised sixth:

Example 17. Dorian Interpretation of Various Baroque Fugue Subjects

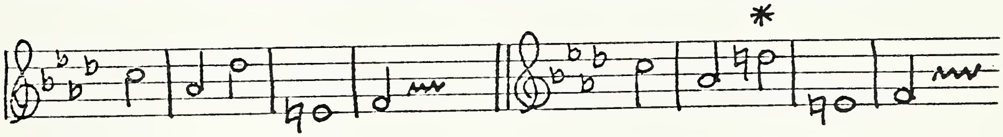
J.S. Bach, Well-Tempered Clavier: I,8



J.S. Bach, Art of Fugue



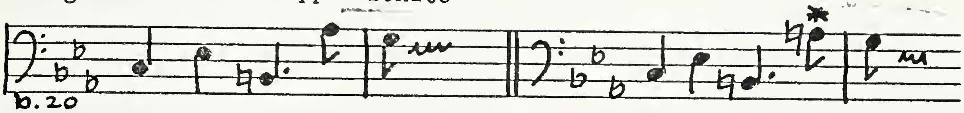
G.F. Handel, The Messiah, #25 "And With His Stripes We Are Healed"



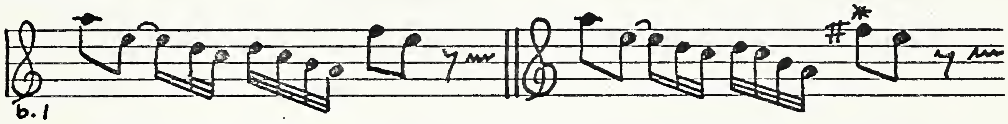
A good musician would wince at the thought of such transformations, and, when heard, they would cause unbearable aural anguish. The jarring, if not disruptive, quality of the tritone between the lowered third and the raised sixth degree is not a quality limited to either one period or one frame of reference (i.e., primarily diatonic and not "ultra" chromatic). Take the following, for example:

Example. 18 Classical Subjects with Dorian Interpretation

L. v. Beethoven, Piano Sonata, Op. 111, 1st movement
Allegro con Brio ed Appassionato



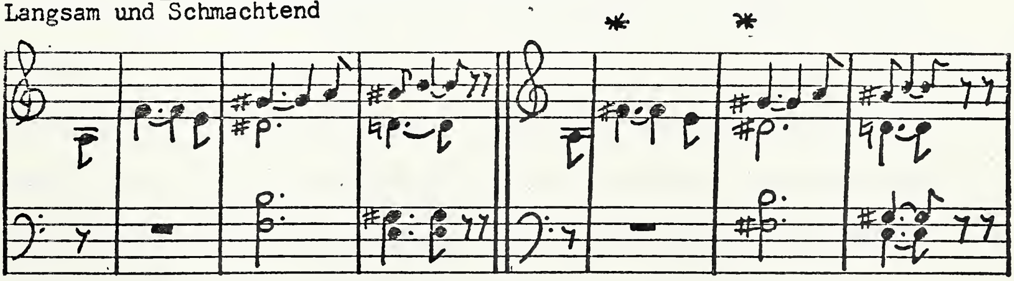
C.P.E. Bach, *Württenberg* Sonata No. 1, 1st movement
Moderato



While the tritone relationship with the third is not as directly given by the previous examples, the disruptive quality of its presence is readily apparent nonetheless. The raised sixth just alters the character of the passage altogether. A more hideous form could be made from one of the most chromatic and intense pieces ever written where one could be (naively) tempted to wonder as to whether one more chromatic inflection would make that much of a difference. A playing through of the following example should suffice to show how much of a difference it does make:

Example 19. Dorian Interpretation of a Passage of Romantic Music

R. Wagner, *Tristan und Isolde*, Einleitung.
Langsam und Schmachtend



It should be quite clear by now from both reason and experience why it is that the Aeolian minor and natural major are the preferred tonal

systems and why the other four systems "prove inferior to the major and minor modes, or even unusuable from the point of view of motivic exigencies...."(p. 57).

And, in fact, the use of the pure forms of the Phrygian, Lydian, Mixolydian and Dorian are quite rare. To avoid the tritone it was not uncommon to introduce musica ficta to correct this "devil in music."

The disappearance of the other four modes from usage was wrought from primarily two factors. On the one hand, the modes all reveal either a basically major or basically minor character as determined by the triad built on the tonic. On the other hand, two of the systems provide a consistent set of strong relationships confirming the principal tones of the triad. The triads on the tonic have either a major or minor third thus characterizing the modes as being basically either major or minor in character, so the "reduction of those many systems took place" (p. 58) to accomodate the greatest possible number of fundamental characteristics: two; major and minor. And, in light of this, Schenker asks rhetorically:

> Indeed, who would be tempted to erect new systems merely for the sake of some particular turn and despite the fact that his [the artist's] instinct is perfectly at peace considering ... the major and the minor to the exclusion of the others (p. 76).

And what it was that "pleaded with the artist in favor of the major and minor" (p. 76) was the fact that in these pure systems, none of the elements contradicted the principal tones that define the system (the tonic triad), and, on the contrary, confirm them with the strongest possible relationship that can be obtained between two tones of different pitch classes. It will be shown below that Schenker conceives of many of the seemingly "modally inflected" passages in the

literature as being mixtures of the pure major and pure minor systems.

Despite the fact that there are two basic systems, the major and the minor, and that there are numerous differences between them, Schenker sees one factor that unites them. That is, that each of these two systems' differences rests primarily on the character of the third and its upper and lower fifth relationships. Otherwise, they are exactly the same in that it is the same fundamental tone that governs the relationships between tones in a piece. Irrespective of whether the characterization is major or minor, it will be one tone that fundamentally governs or determines the manifold activities and tonal occurrences in any piece. Hence:

> the tone A, for example, may subject all other tones to its domination so far as it has the power to force them to enter with it into those relationships which are established in our major and minor systems...(pp. 84-85).

So whether the piece is written in the major character or minor character, it is irrelevant to the fact that it is the tone A that the other tones relate to. It would seem then that the two basic characterizations are characterizations of the one tone's manifestation in the triad. And that it is the one tone which primarily governs the relationships among tones.

This subservience to the domination by one tone, however, in no way negates the difference between the characterizations, nor does it cause the major-minor system to relinquish the pull and power that it has as a complete system. It simply means that these differences are ultimately subservient to the central tone. For this reason, mixtures of major and minor occur within the sphere of the same tone. We have noted earlier how pieces in the minor characterization will

end in the major characterization of the same tone (i.e., d minor to D major), and not go to the relative major or minor (i.e., d minor to F major, or vice versa). This is a point that Sir Donald Francis Tovey takes pains to point out as well.

> First of all, let us get rid of the implications of the current terms "relative minor" and "relative major". The Key of A minor is called the relative minor of C, and C major is called the relative major of A minor. Relative minors and majors happen to use the same key signature, a mere matter of typographical convenience. They are no more closely related than the rest of the five related keys, i.e., d,e,F,G and a in C major.[49]

And,

> First, let us be quite clear about the contrast between tonic minor and tonic major. Remember that the contrast is not a "modulation" or change of key at all: it is a change of outlook while we stay at home.[50]

And finally,

> The first thing that must be realized about classical tonality is that the tonic, whether major or minor, is, so to speak, the listener's home. A composition in a minor key, say C minor, will always present some elements of emotional conflict so long as it remains in the minor mode, but it will have ended at home whether it ends in C minor or C major.[51]

In addition, Tovey points out that there are some "twenty-six cases of contrast between tonic major and minor" in Beethoven's piano sonatas.[52]

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[49] Sir Donald Francis Tovey, Beethoven (London: Oxford University Press, 1944), p. 22.

[50] Ibid. p. 11

[51] Ibid. p. 10

[52] Ibid. p. 11

But in addition to direct contrast between major and minor, it is possible to combine aspects of each with the other. In most harmony books this goes under the heading of modal interchange, wherein tones of the major are interchanged with tones of the minor or _vice versa_. This modal interchange or mixture of major and minor modes is a common occurrence and, according to Schenker, the "vitality" of a tone "will be measured by its ability to enter with other tones" in relationships determined by the major mode and "simultaneously those other relationships created by the minor system" (p. 85). Schenker calls this process _Mischung_ or mixture, or, as it is rendered in the _Harmony_, combination.

To explain this process of combination Schenker uses what must be termed an analogy. An _analogy_ is a "form of reasoning in which one thing is inferred to be similar to another thing in a certain respect on the basis of the known similarity in other respects."[53] In general, arguments from analogy are the weakest kind of argument, because direct discussion of the factors is left wanting, and discussion of a different thing is undertaken. This leaves us with a great deal of knowledge of what it is we are not particularly interested in, in a primary way and only secondary or comparative knowledge of what it is that we truly wish to know about.[54] On the other hand, there are advantages in terms of explaining what is meant by some phenomenon for the unfamiliar can be seen in the light of the familiar. This makes it easier to grasp or be understood, but this is not the same

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[53] Urdang, _Random House Dictionary_

[54] Joseph, _Logic_, pp. 532-542. "The argument from Analogy...takes a conjunction of attributes as evidence of their connexion."

thing as a proof. Consequently, to extract the most understanding from the section "The Biological Foundation for the Process of Combination" (pp. 84-85) it is most fruitful to view it as an analogy which provides a comparison, not a proof.

The analogates are "man" and "tone" and the analog is the "vitality" or "egotism" which they have (p. 84). First of all, then, "How do the vitality and egotism of man express themselves?" There are two factors that determine this. The first is the quantity of relationships and the second is the quality. On the one hand, vitality is expressed in men as the ability to have as many "relationships as the struggle for life will permit." And on the other, it is expressed as the ability to "gain the upper hand" in each of these relationships. So we say, according to Schenker, that "the more numerous the relationships,...the more intense the self-expression" and consequently "the greater...is the vitality" (p. 84) of the man.

We may state the analogy as follows:

> As we measure the intensity of self-expression (vitality) of a man by the number of relationships he can enter into and still remain dominant,
> So we measure the intensity of self-expression (vitality) of a tone by the number of relationships it can enter into and still remain dominant.

A tone "...dominates the others if it subjects them to its superior vital force, within the relationships fixed in the various systems" (p. 84). Thus, the vitality or power of self-expression of a tone will be measured by the number of relationships it can enter into with other tones and yet remain dominant. Or, putting it in another analogy, as a man's life is richer for the diversity

he can incorporate into it, so the life of the tone is enriched by the diversity of relationships it can enter into with other tones.

In terms of basic systematic diversity and the analogy of "vitality," a tone will be seen and understood as being more vital or more fully self-expressive:

> if the relationships in which it can express itself are more numerous; i.e., if it can combine, first of all, the major and minor systems...(p. 85)

which means:

> if it can express its self-enjoyment in those two systems with the greatest possible intensity (p. 85).

Thus a tone by entering into relationships with both the major and minor modes or systems will be living a "more abundant life," and, hence, will be greatly enriched and more vital as a compositional force.

The domain of the tone is widened when a greater diversity of material is used. The greater the material used with the same tone dominating it, the greater the domain of the tone's central organizing power. If the increased amount of material is under the central command of one tone, not only is the power of the tone left intact, but it is strengthened or shown to be stronger on account of its ability to handle a diversity of material. One specific kind of diversity of material is called combination. Another is called chromaticization. They are both different kinds of processes and have different origins and effects, but both are alike in their results: widening the domain of the tone. Their differences call for separate treatment. The process of chromaticization will be dealt with in a later chapter. Combinations will be dealt with immediately below.

As has been shown, the major and minor systems have their origin in the overtone series. The major system is the natural system for the major third is given in the overtone series. But because the major third can suffer an alteration to a minor third without damaging its quality as a third, an artificial system based on the minor third has been erected. It was erected by using the minor third (a natural phenomenon of our perception), and its upper and lower fifths (the sixth and seventh degrees). Both major and minor are characterizations of one tone: the tonic. And so, as differences in character are not substantial differences but secondary ones, the mixing of major and minor characterizations does not alter the central dominating power of the one tone, but rather extends the immediate number of relationships that it can enter into. To this process of mixing the characterizations of major and minor forms of one central tone, Schenker gives the name "Combination" (p. 86).

> The combinations are actuated between the major and minor modes and, obviously, only within homonymous keys, i.e., between C major and C minor, A major and A minor, E-flat major and E-flat minor, etc. The combination may proceed from major to minor or from minor to major; in both cases, the same result is reached (p. 86).

In fact, Schenker feels the third in its characterizing power so strongly that he advocates, for the purposes of tonality, that the major and minor distinctions be obliterated, and be replaced by a "major-minor" designation. We ought to ascribe the maximum significance to the fact that it is one tone that dominates all the relationships in a work. Hence, the proper designation of the tonality of a piece is, say, $C\frac{\text{major}}{\text{minor}}$. This designation leaves the

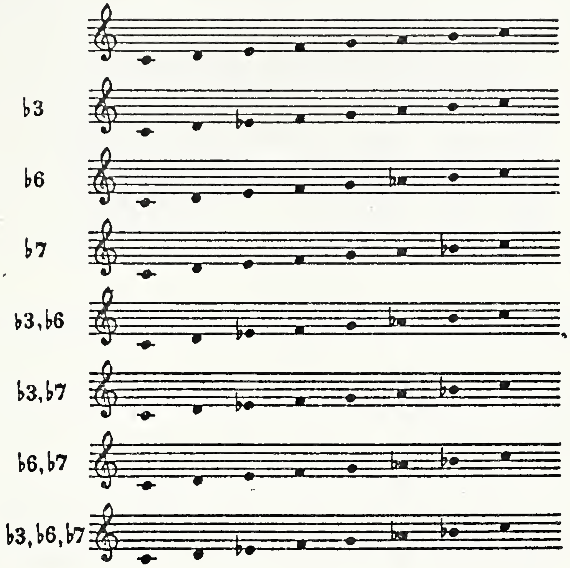
particular characterization of the tone in abeyance and brings forth the fact that it is the tone C which is of central significance:

> Properly speaking, I think that any composition moves in a major-minor system....A pure C major, without any C minor ingredient, or, vice versa, a pure C minor, without any C major component, hardly ever occurs in reality. The expansive urge of the tone demands the use of both systems as well as of all their possible combinations (pp. 86-87).

As the major and minor forms of the scale differ only with respect to the third and its upper and lower fifths, there are six possible combinations of major and minor modes. As the other tones besides the third, sixth, and seventh are common to both major and minor modes, they are of no account in this respect:

> If we take C major as our point of departure and introduce into this key the minor intervals, one at a time and in all possible combinations, we obtain six different scales or series, as shown in Example 68.

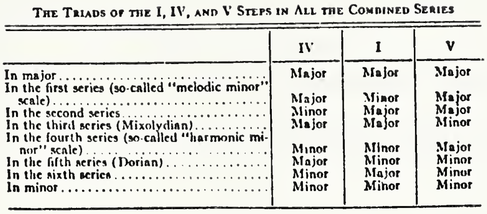
Example 68 (75):



(p. 87)

It should be re-emphasized here that only the major and Aeolian minor are "pure" systems, for only those two systems have consistency of design and utter permeation of their respective major or minor characters into chords formed on the tonic and its upper and lower fifths (the dominant and sub-dominant). These other six possible scales shown immediately above must be seen as the products of combination and not as systems in their own right, for they lack this consistency of inflection. The following table by Schenker summarizes the triads erected on the tonic and its upper and lower fifths of the various series:

Example 20. Schenker, p. 93



The Triads of the I, IV, and V Steps in All the Combined Series

	IV	I	V
In major	Major	Major	Major
In the first series (so-called "melodic minor" scale)	Major	Minor	Major
In the second series	Minor	Major	Major
In the third series (Mixolydian)	Major	Major	Minor
In the fourth series (so-called "harmonic minor" scale)	Minor	Minor	Major
In the fifth series (Dorian)	Major	Minor	Minor
In the sixth series	Minor	Major	Minor
In minor	Minor	Minor	Minor

Note that only the first and last series, the ones Schenker calls "In major" and "In minor," are permeated with one character or the other. The other six series have a mixture of major and minor triads on the tonic and upper and lower fifth tones.

Schenker's point on this is quite straight forward: Should we consider each of these eight series tonal systems or should we consider two of them tonal systems and the other six as mixtures or combinations of these two? We have already argued at length earlier for the separation of major and minor modes as pure systems and in light of that discussion it is apparent that Schenker would choose the latter alternative:

> The method of combination as we have described it above has the following implication: While preserving the major as well as the minor systems in their absolute purity [emphasis added] and while equalizing the two, as demanded by our artistic purposes, not only have we obtained, by combining both systems, those series which modern theory erroneously designates as various forms of the minor system, but at the same time we have gained several additional series...(pp. 93-94).

From this citation it can be seen that the idea of mixtures or combinations preserves for systematic purposes the purity of the major and minor systems, and in virtue of considering the third and its upper and lower fifths as the result of characterizing the principal

generating tone (the tonic) accounts for the six possible combinations or mixtures of mode. And this latter is what is meant by "equalizing the two" pure modes.

The "egotism" of the tone is shown by its ability to enter into these six possible combinations and yet remain supreme. The "egotistic-expansive urges of the tone itself" (p. 94) drive it to "live a full life in all sorts of possible relationships" (p. 94). It is the grasp of these urges by the artist that makes possible the use of these combinations and demands them. It makes it possible in that the sustaining integrative power of the tone permits the incorporation of these various mixtures or combinations of mode without any negative effect on that power. It demands them in that the tone as a potency to integrate material, or survive in "all sorts of possible relationships" (p. 94), wants actualization of that potency. It wants to have the limits of its assertive power drawn out and utilized and to have its "egotistic-expansive urges" (p. 94) satisfied.

The reason why this is possible technically is that the principal tone (the tonic) and its upper and lower fifths are unaffected as scale degrees by these mixtures. As such, since they "anchor" the tonic, and since they are unaffected by this process of combination, the tonic always remains securely anchored. That is, the third, sixth and seventh degrees are the ones involved in combinations, not the root, fourth and fifth. So the power of the tonic is never challenged by these mixtures, and, thus, it is extended by their inclusion. It is extended because it "wields power," as it were, over more than six other tones (the pure scale). Its power has been extended over nine

tones (the pure scale and three mixed or combined tones). It is this potency to integrate three additional tones (the three tones which are products of combination) that is actuated by the process of combination. This expansion of the tonic's power to these three additional tones is the satiating of the "egotistical-expansive" drive or urge of the tone (p. 94).

Now it should be apparent that since the major and minor modes are pure modes, and since any inflection of these three degrees is the result of a process of combination, that whether the inflection is brief or long, it is an inflection nonetheless and thus is the result of the process of combination. Consequently, any time such an inflection occurs it must be considered a combination. The transience between major and minor mode need not extend to any great length of time in order to be considered a mixture of these two modes:

> A combination may be actuated in the time of a sixteenth-note, even of a thirty-second, and only by one single element. It would be illicit, therefore, to deny the existence of a combination merely on the ground that its duration was brief (96).

The interesting implication brought forward by this passage is the subordination of time to tonal motion. The tonal motion here is between major and minor form of the mode. That the motion may be of only brief duration is not significant to the fact that there is this motion. The implications of this are far reaching in terms of Schenker's later developments. The essence of his later theories is in part the reduction of a musical work to a simple motion of some kind and the assertion that the same basic kind of motion governs all tonal works. The point being that while time is needed

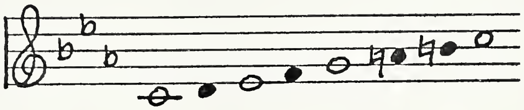
to actuate tonal relationships, the actual time, i.e., the specific duration, is not a specifiable parameter. The time spent actuating the relationship(s) may be brief or long, but in either case the relationship(s) is (are) established nonetheless. As in the case of combination, there need not be any minimal amount of time spent using the tone borrowed from the opposite mode excepting the stipulation that there be some. There is also a converse effect which is that a series of changes in material may not disturb the essential long range holding power of a tone.

In the case of combinations, for example, a series of combinations would have no effect upon the central dominating power of the tonic. In such a case, too, the lack of tonal motion away from a particular tone is also subordinating the temporal element--the temporal element caused by the inclusion of a variety of combinations of major and minor mode. This, albeit implicit, concept of one tone subordinating the actions of other tones to it is one ultimately developed into the "Urlinie-Ursatz" idea. It makes its first formal appearance in a later chapter in the Harmony as the Theory of Scale Steps. It is a readily apparent concept throughout the whole section on combinations in that the one tone, the tonic, is seen to wield power over the major and minor forms of the mode and both those forms are subordinate to it. This subordination occurs regardless of any time factor.

As such, any number of combinations of varying kinds for varying lengths of time may occur without disturbing the tonal focal point. In addition, one of the advantages of considering not-pure major or minor forms as combinations is that it facilitates the correct interpretation

of musical passages. To take one example, the first combination series which is often identified as the "melodic minor" scale

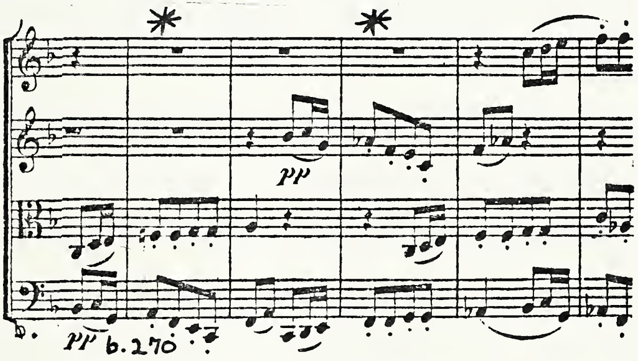
Example 21. The First Combination Series, "Alias" The Melodic Minor



need not always be minor in its origin. This series is usually explained as the "natural" minor scale with the borrowed leading tone from the major with the sixth degree raised for the purpose of smoothing out the voice leading. But this series often does not derive from the minor but rather from the major:

Example 22. The First Series Derived from the Major: Beethoven's String Quartet Op. 59, No. 1, 4th Movement

Allegro (F major-minor)



In fact, one of the characteristics of this movement of the Beethoven quartet is the sudden inflection of the third and then backing away immediately from it. In such an instance it would be wrong to assert that the series of tones used was derived from the minor with two borrowings from the major. Rather, this movement shows the exact opposite happening. The series of tones is derived from the major with one borrowing (now and then) from the minor form. So the value

of seeing this series of tones as a combination and not as only the melodic form of the minor scale aids in giving an accurate assessment of what is actually occurring in the music.

Schenker goes on to discuss some seventeen different examples of combinations. It would be much beside the point to repeat his discussions here and this section is better read in its entirety. What these examples serve to show is that there are a variety of ways, effects and possibilities of combination. Combinations can effect a direct contrast between "major and minor colors in the background of the same motif"(p. 97), they can effect a transition between minor and major very slowly (pp. 97-98), enhance the delaying of final cadences by alternating raised and lowered sixth scale degrees (pp. 99-100), increase intensity (pp. 100-101), provide color contrast (pp.101-102), act as a source of temporary tonal confusion *via* cross relations (p. 105) and so on. Not all parts of a piece need to take part in a combination. The combination in an opera excerpt, for example, need not penetrate both vocal and orchestral parts; often such penetration does not take place (p. 108). Each case is so highly individualistic that the purpose and function and effect of each instance of combination must be weighed and evaluated on its individual merits. The number, kind and quality that are to be found in each particular case is not something that can be specified. The only thing that can be generalized about is the nature of the process. When neither the pure major nor pure minor is used, the process involved is either chromatic alteration or combination. The time element is insignificant and even the shortest

inflection is sufficient to warrant identifying the process as a process of combination of major and minor. The exact source of the combination must be determined by the context in each case as in the example given earlier of the first series which is often called only the "melodic minor" scale.

To summarize this chapter: the major and minor are two different characterizations of a tone; the major system, because it is directly derived from the partials, is the Natural system; the minor system, because it is an acoustical adaptation of this natural system is deemed "The Artificial System"; the fifth, because it is unalterable, serves as a standard of measure; the upper and lower fifths anchor a tone; the upper and lower fifths of the three tones in the major or minor triad determine the other tones of the pure system; in each pure system the basic characterization permeates the triads built on the tonic's upper and lower fifth; the ancient modes are deficient as tonal (not modal) systems in their consistency and thus cannot be the basis of a tonal system; mixtures of major and minor are not separate systems but the result of a process of combination; combination can be effected in any time period for a variety of purposes; these vary from instance to instance; combinations serve to expand the integrative power of the tone by including additional elements in its sphere of power without negating the tone's power; as a result, and because the tonic and its upper and lower fifths are not altered and neither are the dominants by the process of combination, a work is properly understood to be in (say) $\text{C}\frac{\text{major}}{\text{minor}}$, that is, the life of a single tone governs all relationships within a work if the work is tonal.

CHAPTER FOUR: SCHENKER'S USE OF BIOLOGICAL ANALOGIES

Throughout the preceding chapter, several references were made to what the author will call "biological analogies." That is, tones, which are inherently dead things, are discussed in terms of living organisms or aspects of living organisms. This is found in such phrases as "the life of a motif" (p. 13), "the fifth enjoys[s] among the overtones, the right of primogeniture" (p. 26), "and how could the intensity of its [the tone's] self-expression be measured?" (p. 84), etc. And quite explicitly, Schenker states that

> a system resembles, in anthropomorphic terms, a constitution, regulation, statute or whatever other name we use to grasp conceptually the manifold relationships we enter (p. 84).

And, even more to the point earlier on in his Harmony, the theorist says:

> We should get accustomed to seeing tones as creatures. We should learn to assume in them biological urges as they characterize living beings (p. 6).

In addition to these few quotations from his Harmony (which are found on well over half the pages, in kind), the name Schenker chose for his first periodical was "Der Tonwille"[55] or "The Will of the Tone." Such a concept was heralded also in the preface to his Harmony:

> I should like to stress in particular the biological factor in the life of tones. We should get used to the idea that tones have lives of their own, more independent of the artist's pen in their vitality than one would dare to believe.
>
> This whole work is guided by this exalted concept of the vitality of tones in the reality of the work of art (p. xxv).

From these quotes, et al., it would appear that Schenker has something

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[55] Heinrich Schenker, Der Tonwille (Vienna: Universal Edition, 1921-1924).

more in mind when using these biological analogies than merely the literary device of personification, i.e., the attribution of personal nature or character to inanimate objects or abstract notions.[56] What exactly he means, when he uses these analogies, is not at all easy to state.

What exactly does Schenker mean when he talks of the "life of the tone," or the "life of a motif," or of a tone's "self-expression?" We may begin by noting that ascribing characteristics to music which have to do with "life" is not a particularly new idea. As practicing musicians, we unhesitatingly discuss music in some way that emphasizes a "living" aspect. We speak, for example, of a "lively" performance of a work, or of a "dead" one. Or we may say that this work is profoundly expressive and moving and that one is not. In the baroque era music was thought of in terms of the Theory of Affections. It was thought of as an expression, or a representation of something other than the succession of the tones themselves. Music was considered to be some aspect of the passions of the human soul, embodied by some means in sound. Even today few would deny that music in some sense (the particular sense being a question much open to debate) has qualities that cannot be accounted for in terms of the sound waves in and of themselves. Ideas such as passionate, tragic, restrained, exalted, joyous and intense are not qualities usually or properly applied to inanimate things, and tones are inanimate things.

What causes most people to listen to music is something that is truly bordering on the miraculous: inanimate objects (tones) following

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[56] Urdang, The Random House Dictionary.

one another and in combination can cause the most intimate and delicious sensations and passions to be aroused. From the earliest recorded history down to the present day, this fact has been attested to and mythologized. Pan, Orpheus and St. Cecelia are part of our musical heritage. They symbolize the invention, power and support of music as an expressive art. Philosophers and thinkers of all ages have written on the expressive power of music. Music's ability to move the heart is taken to be almost self-evident. The problem of how it does and what precisely is done remains unsolved. One point is to be made from this. The effect of tones seems to extend beyond their immediate impression on the ear. What we get out of listening to them is something more than what they are individually. The succession of tones adds up to something--something other than the meaning of the tones themselves.

What becomes clear from considering this aspect of tones-in-succession is that it makes a difference which tone follows another. The significance or content of a piece of music is determined by which tones follow which others. If there is a different order, there is a different meaning. As well, other factors come into play here in determining the content of a composition. The rhythm, dynamics, texture, scoring, tone-color and complexity of part-writing play significant roles in determining the emotional content, but for the moment we will be concentrating on the order of tones for it is primary. The principles that will be discussed should apply to these other aspects of tone with, of course, appropriate modifications, but it is not our aim to go into them here.

Since the difference in the succession of tones makes a difference to the end achieved (which particular content is expressed), one could, presumably, discuss or justify whether or not some tone or sequence of tones contributes or detracts from the overall end or content of a piece. A tone will either add to or take away from the content. Either there is a reason for it being there, in which case it adds, or a tone's presence in a composition is useless and without regard for the end that is sought.

This is a difficult thing to argue in particular cases but the general principle should be clear enough. In comparing music to a literary work, for a moment, one can see that certain portions of a composition serve to expose material, and that certain portions act as modifiers, or digressions, or conjunctions, or extrapolations of the material. Too much of one aspect or too little of another may hamper the clarity of the content expressed. If the right ingredients are there but not properly integrated and their presentation lacks coherence, then the expression of the content will be weakened or will even prove ineffectual.

This discussion primarily belongs to Aesthetics for it is the field of study concerned with such matters. What concerns us here is that, irrespective of the particular content expressed or sought after, and regardless of the function and relevancy of contributory material, the material used must be technically purposive as well. The inclusion of a musical idea, however it contributes to the meaning of the work, must be technically coherent. This means two things.

The first is that the musical idea must be technically coherent in itself. A musical idea must make musical sense. A musical phrase or melody must be coherent as a phrase or melody. The second is that it must fit into the whole piece coherently. The development section of one sonata could not replace the development section of a different sonata even if it were a technically coherent structure. Each element in a musical composition must be technically purposive.

The area of the question "What is the technically purposive in Music?" is very wide. The vast array of problems it covers were the subject of Schenker's theoretical writings. Our task here is quite modest. Concern will be with defining some aspects of this idea and how they relate to biological analogies.

Schenker often discusses tones in terms of the characteristics of living things. A number of traditional ideas used to describe the formal aspects of a composition display this trait, e.g., _coda_, development section, _alla Marcia_. But tones do not develop, nor do they form tails or march. They simply follow one another in succession. _We_ ascribe these qualities to tones. But while such statements are not literally true, as analogies they might quite legitimately refer to some other characteristic of tones. But the source for such analogies cannot be in the inanimate tone themselves.

In Chapter One, Schenker's general approach was defined as being objective. This was so because he derived the basic tonal material, the triad, from the interaction of two sources: the sound wave and human perception. The triad has an inherent set of relationships (root, third and fifth). The relationships between these elements

are not all of the same order. The relationship between the root and the fifth is of a different kind than the one between the root and third. We noted earlier that the fifth was a stable and absolute relationship in that it cannot be altered without the fifth quality being utterly destroyed. On the other hand, the third did permit some modification without the third quality being altered. What does it mean when we say "the fifth quality" or "the third quality?" We are describing a certain kind of musical relationship, but what exactly is the relationship in kind? How do we experience this relationship? We experience musical relationships as tensions.

The triad, as we experience it, is the naturally given sonority which is composed of three different tones that exist in certain relationships to each other which we experience as tensions of a certain quality (fifth or third). Like the chemical bonds between different atoms, as a triad, these tensions are like stored energy. They are a form of tonal potential energy. But unlike chemical bonds, to release this storehouse of energy, the bonds are not broken but are extended.

In the formation of the pure major and pure minor scales, the triad was not broken up. The potential of the fifth was extended. The triad, as the basic unit, was held firm and the only available absolute tension which could combine with a tone of a different pitch class (the fifth) was extended to include other tones. These extensions are not the consequence of the nature of tone alone, but are the consequence of the nature of the relationship that results

when the tone interacts with the potencies of human perception. Thus the relationships established are ones that originate in this interaction, and are non-volitional on our port. We do not will them in and out of existence. We do not impose them arbitrarily on the material. In terms of our experience of sound, they are the naturally given. Just as the triad is the naturally given sonority, so the tensions of intervals are the naturally given. And their extension to other tones is not arbitrary, but, rather, is the actualizing of the potency of the naturally given tensions of the naturally given sonority.

The idea of a tone having a power, dynamic or potency to enter into relationships with other tones is a peculiarly technical idea of the nature of tonal material. But it is technical in a special sense. The special sense is the way in which the technical potency of the tones is realized. It is by extension of the triad's basic tensions that a triad enters into relationships with more tones. The way in which these tensions are applied to musical material relationships resembles the process of growth. A living thing appropriates material and grows. A tone "appropriates" other tonal material and grows: by extending itself, the tone encompasses more tones. This is what Schenker means when he talks of the "egoistic expansive urges of the tone" (p. 84).

The power of the tone to enter into binding relationships with other tones gives the tone a kind of vitality. The vitality is of a technical nature because it expresses a set of relationships that relate tones to one another in a purely sonorous fashion. The fifth, for example, as a musical or sonorous value has its own "vitality" or

potency to enter into specifically musical relationships with other tones. But as a potency, in the sense of a thing with an ability to act, it is "alive." So it is that Schenker says, a tonal system resembles

> in anthropomorphic terms a constitution, regulation,...or whatever other name we use to grasp conceptually the manifold of relationships we enter (p. 84).

The tone, having the potency to enter into relationships with other tones, is enlivened or has the potency to produce tensions. These tensions are directly related to and derived from the way our consciousness grasps the tone. It is these tensions he is speaking of when he describes the "biological urges" (p. 6) of tones. It is the potency to produce these tensions in us that he refers to when he talks of the tone as a living thing.

The purposeful manipulation of these tensions inherent in our perception of tone, the transformation of the natural principles of tone into artistic principles, is what is technically responsible for the cohesiveness and dynamic power of music. The utilization of these tensions, the expanding and contracting of them, and the ordering of them in a technically purposeful context gives the tones what seems to be akin to a living force; hence, Schenker's biological analogies. The tone is said to "extend a power" over other tones. Its potency to be an organizer of other tones is actuated.

The idea of extending the potency of a tone over an area in a composition is the basis of his Scale-Step theory. However, it is the potency of a chord which is to be understood as having a domain,

or being the real vital force in a whole section. The vitality of the tone in its abstract unit (as a triad) to be the potency which is actualized in a time span is the concept of a Scale-Step. The chord as a Scale-Step lives, as it were, throughout a whole section though it may not always be present. This shall be discussed in the next chapter. It derives from considering the triad as a set of potentials to be realized or actualized in time.

Schenker uses the biological analogies to emphasize the dynamic potency of the tone. In talking of the "life of the tone," or "the will of the tone," or the "biological factor " in tones, he is not using the literary device of personification, nor is he asserting that tone have some kind of inherent will, but rather he is giving an account of the élan vitale of the tones when they are used in a musical composition. This particular vitality does not refer to the content, but rather to the tone's vitality as a cohesive technical element.

The potencies of the tone to either gather other tones under its jurisdiction, or have that jurisdiction challenged, or contradicted, are the terms in which he discussed the major-minor system, the Scale-Step, and the process of tonicalization. It is only because he views the tone as a potent force that he is able to arrive at the particular concepts of scale, Scale-Step and tonicalization that he does. It is this potency that he refers to, and tries to give an account of, when he uses the biological analogies.

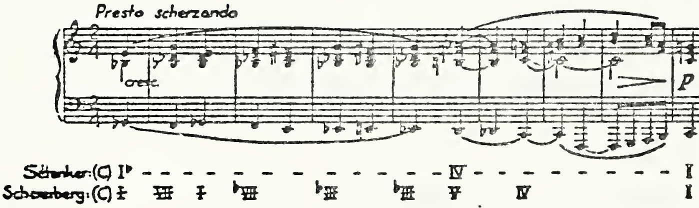
CHAPTER FIVE: THE EARLY THEORY OF SCALE-STEP

We have seen that the triad has its basis, indeed its only basis, in the phenomenon of the overtone series and its interaction with human consciousness, specifically with the limitation nature has placed upon the extent of its ability to hold and discriminate as individual units those that spring forth from it. In this sense, the triad is a stable relationship. It is stable in that it is the naturally given sonority and realizes the full extent of our immediate perceptual powers. We have also seen, in Chapter Three, how in addition to being a stable element, that it itself is the source of stability for other non-triadic elements in the major-minor system. By a series of relationships of a fifth, the relationship of the pure scales (which form the basis of the tonal system) to the triad is made audible and intelligible. And we have, in addition, seen that this power of the tone is technically to be understood as a potency that is realized or actuated in music to provide the structural framework for coherence in music. But in each of these cases, the essential and defining point of their similarity is that the tone has a potency or power which extends to incorporate other disparate elements unto it, so that a whole series of tones is seen to be the actualization of that potential and thus under the tone's control.

This idea of a series of tones as the actualization of the potential of the tone is the basis of Schenker's idea of the Scale-Step (Stufen) . The idea of Scale-Step is essentially that

one chord holds sway over a number of different sonorities. What is meant by this can be seen most clearly by citing an example given by William J. Mitchell which compares an analysis given by Schenker and Schoenberg of the 15th variation of Beethoven's Diabelli Variations. Mitchell believes this comparison "will indicate perhaps most clearly the advanced position that he [Schenker] had reached in 1906 with respect to harmonic functions or steps."[57]

Example 23. Comparative Analysis by Schoenberg and Schenker


Presto scherzando
cresc.
p
Schenker: (C) I♭ - - - - - - - - - - - - IV - - - - - - - - - I
Schoenberg: (C) I III I ♭III ♭III ♭III V IV I

[58] [59]

On first glance one of the main differences between Schenker's and Schoenberg's analyses is the number of Scale-Steps. Schoenberg gives nine different Scale-Steps whereas Schenker gives only three.[60]

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[57] William J. Mitchell, review of Harmony, by Heinrich Schenker, transl. Elizabeth Mann Borgese, ed. and with intro. by Oswald Jonas, in The Musical Quarterly, XL1V (1955) 497.

[58] Schenker, Harmony, p. 161

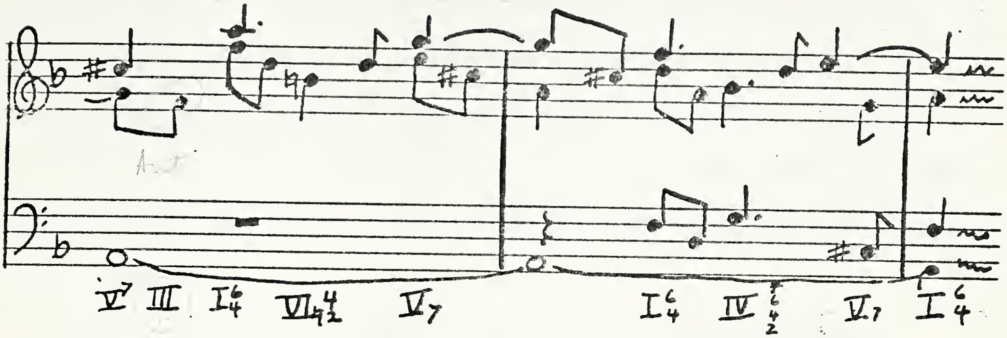
[59] Arnold Schoenberg, Structural Functions of Harmony (New York: W.W. Norton, 1954), Example 102a (cited by Mitchell, Ibid.).

[60] Also note the difference in the fourth bar where Schoenberg cites a V and Schenker a 1V. And, note that Schenker simply cites the particular Scale-Step whereas Schoenberg feels it necessary to indicate with a slash that an alteration has occurred; Schenker analyzes the harmonic function, and Schoenberg describes the vertical structures. This difference is discussed below. Also note the slight divergence between what is given in Schenker's Harmony and Mitchell's Review namely that the first Scale-Step is given as 1^{b} and not 1^{b7} which is in the original. The "b" by itself indicates a lowered third which is not present, but the "b7" indicates a lowered seventh which is present. This is doubtless a typographical error in the Mitchell.

Schoenberg's analysis is more representative of the tradition of Rameau in that almost every vertical structure is given an indication of Scale-Step function, whereas Schenker's shows what could be termed a rather large plagal cadence. In Schoenberg's analysis, almost every chord is designated to be a Scale-Step. In Schenker's only a few have this function. This would indicate that for Schenker, the designation of a chord as a Scale-Step is not an automatic process that is applied indiscriminately to every sonority but is a selective process. Only a few structures qualify for that position. This puts the Scale-Step in a technically exalted position in that not every chord qualifies. "Many are sounded, but few are chosen" would initially seem to be one characteristic of the Scale-Step.

This is a contrast from most conventional approaches, which stem primarily from Rameau, of assigning a Scale-Step function for each and every vertical structure. In most harmony classes or most analysis classes great emphasis is put on being able to classify each and every vertical structure that occurs. But in a number of "special cases" this method of "analysis" is obsolete and unusable. The dominant pedal (or tonic pedal for that matter) is a case wherein it would be perfectly useless to try to describe all the vertical structures as Scale-Steps. It is generally recognized that the effect of the dominant pedal is to build up tension on that Scale-Step. All the other sonorities are passing phenomena which come under the power of the dominant chord, which is their ultimate objective. One would be ashamed not to call the following analysis of a section employing a dominant pedal from Bach's Art of Fugue ridiculous:

Example 24. A Section of Bach's Art of Fugue with Traditional Chord by Chord Description



What Schenker sees in a similar example

> is the technique which enables a tone to gather, so to speak, a large sequence of contrapuntal parts into a unity, this being the proper function of the "scale-step" (p. 141).

But strictly speaking, if every vertical structure is supposed to be a chord and have a function as a Scale-Step (which is in accordance with Rameau-based theories) the analysis given above is the proper kind warranted. It would not be possible to conceive of a single Scale-Step "gathering" a number of sonorities under its belt, as it were, on this view. But this "gathering" of sonorities under the command of one harmonic region, or chord, or Stufen is what is heard in the case of the dominant pedal. We hear one harmony which is embellished, or extended, or stretched out, or prolonged, or composed out by a series of sonorities that are not the specific tones of the harmony. In the Bach example given above, the A major chord is heard as the chord which governs the whole web of sonorities that proliferate in those bars. In the example of Schenker's analysis (above) of the Beethoven variations, a similar approach is taken in that one chord is said to govern the whole web of sonorities as indicated. Thus,

Schenker's question concerning the nature of harmony comes forth: As in the case of the dominant pedal where all the sonorities fill out or prolong the dominant chord whose Scale-Step is given by the pedal, could not the same be said for other Scale-Steps? And, does it matter that the root tone does not sound; i.e., can the Scale-Step still have its "gathering" effect when the root is not present as an actual pedal?

This is a question posed by the Diabelli Variation example, for the analysis is done in terms such that the one chord has dominion over four bars just like the dominant pedal has dominion. The only difference is that in the former case the pedal tone is not present, whereas in the latter it is. One could compare the former to a magnet in that the attraction of tones to the one chord takes place without the actual binding force being evident to the senses directly. The power is there nonetheless; it simply is not present in the form of a leash or structural steel beam as might be the pedal point in the dominant pedal example:

> The scale-step asserts its higher and more general character by comprising or summarizing the individual phenomena and embodying their intrinsic unity in one single triad (p. 139).

Whether it actually sounds or not, Schenker asserts that the Scale-Step is present as a factor that unifies or governs a whole series of sounding phenomena. It acts just like the dominant pedal, but what has changed is the form of its implementation. The pedal point is given in the one but not in the other, yet both "gather" a number of distinct sonorities unto it. As Slatin puts it, the Stufen "func-

tion as a means of harmonic orientation."[61]

Schenker's own discussion of Stufen and harmony is surprisingly brief in his Harmonielehre. But it is immensely fertile. The novelty of his harmonic analysis of the Beethoven example cited earlier lies rooted in his concept of harmony as an abstract mode of thought and not as a descriptive technique of classifying every vertical structure. The triad, as we have seen earlier, is already an abstraction drawn from the "abbreviation" of the first five or six partials. The triad summarizes, as it were, the individual tones generated by a single tone into a single unit. The triad, in turn, functions as a Stufe when it "summarizes the individual phenomena and embodies their intrinsic unity in one single triad" (p. 139). Thus, not every triad need be a Stufe for it may be part of a summarization and not the summarizer. The reason why this section on Stufen and harmony is brief is that "there are no rules which could be laid down once and for all" (p. 141) in determining which chords function as Stufen and when and how, for as they are not concrete entities that can be found by looking at the printed page of music, but rather are conditions of our hearing that must be experienced and understood in the context of a particular piece:

> ...by virtue of their abstract nature, the rules flow, so to speak, from the spirit and intention of each individual composition (p. 141).

It is not always possible to precisely define when and how chords act as Stufen for this will vary from context to context. Two

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[61] Slatin, "...Schenker in Perspective," p. 62.

very similar passages could have different meanings because of the context in which they are placed. In a way it is like a dramatic event in a play which can have different meanings, emphasis and importance determined by the context, even though they be the same event. Consider for example the act of killing another human being. In the play MacBeth, the killing of Duncan is no more or less a killing than the killing of the messengers sent to kill his sons and the other ensuing deaths. Yet in terms of the dramatic significance attached to them, they each express a different order in terms of their local and overall significance to the drama, and they signify different things as well. But each of these is an act of killing. No less so is the final demise of MacBeth. They each have their own meaning, emphasis and importance ; these are determined by the context of the play. The same applies to triads. Each has its own meaning, emphasis, importance and significance. And which meaning, etc., it will have will be determined by the particular context within which it is placed. More generally, no triad has an absolute contextless meaning that it can be counted on to assert regardless of context. If one wants to discover what function a triad has at any one given time one must look at the context in which it is placed. Only in this way can one distinguish between a passing phenomenon of a triad with a certain root tone, and a Scale-Step with a certain root tone:

> But my concept of the scale-step, if it is to serve its purpose, is far loftier and far more abstract than the conventional one. For not every triad must be considered a scale-step; and it is most important to distinguish between C as the root tone of a triad and C as a scale-step (pp. 138-139).

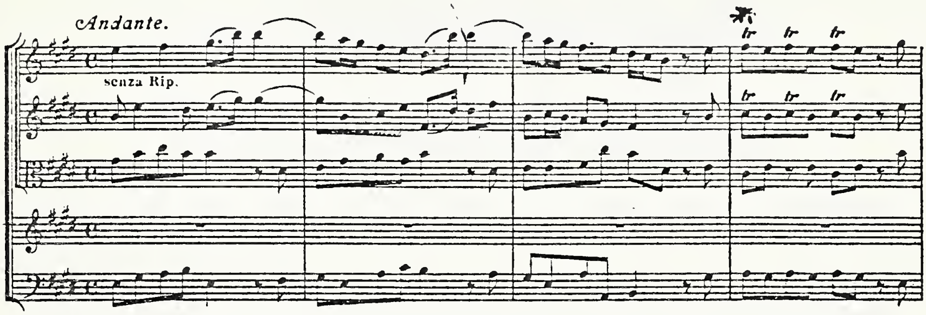
And more generally, the nature of a principle is such that it must be

general enough to include all instances. For example, the principle that all men are rational does not in any way attempt to define the what, how or why of the specific applications of their rationality. It simply states that they possess the potency or faculty of reason. Anything else must be determined from the context of the specific application. A general principle will not specify particulars of the application, it will merely state that certain factors will be involved in certain processes. Schenker here is asserting that in a tonal composition, certain factors of harmony will be involved. One of these factors is the organization of "individual phenomena" into Scale-Steps ("in one single triad" [p. 139]). As in the Beethoven example cited earlier, Schenker sees all of the sonorities in the first two bars as being organized into one single chord--that of the first scale degree--and the next two bars as being the expression of the subdominant, and the last chord, even though only one beat in length, as being another expression of the first scale degree. One would not be hearing in terms of individual moments, but broad tonal patters. This is not an unfamiliar concept in that in describing the sonata form the idea of "opposition of tonal regions" is used unblushingly. Schenker's point in the Harmony is that it applies as well to the workings of much smaller units. They, too, are heard not simply as a succession of moments, but as moments organized into larger units. These larger units are called Scale-Steps or Stufen.

This kind of thought is also evident, to some extent, and in a much narrower range, in some aspects of other theoretical ideas. The appoggiatura, passing tone, suspension, neighbouring tone and antici-

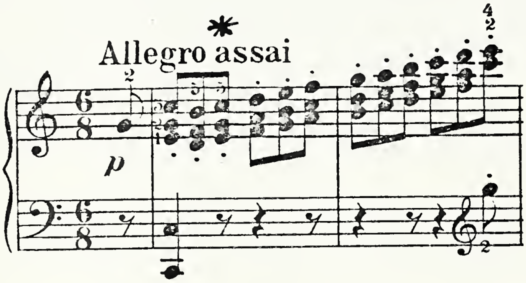
pation are all, to some extent, recognitions of the fact that not every vertical structure is a chord. That we have these classifications attests to this fact of our hearing. Also, this common Baroque configuration:

Example 25. Handel's Messiah, "Every Valley."



along with this kind of configuration:

Example 26. Beethoven, Piano Sonata Op. 2, No. 3, 3rd movement



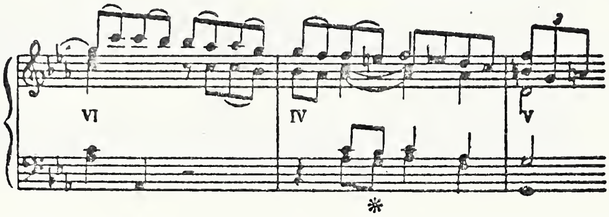
are extensions of the idea of a neighbouring tone or passing tone. A sonority has been added to the neighbouring tones and passing tones, but one does not hear a series of I-II progressions in the Handel, nor does one hear the "chord progression" I-II-III-IV-V etc. in the Beethoven. In both cases, the harmonic orientation remains constant throughout the duration of the passage even though there are chord

changes (and in the Beethoven example, some eleven of them). The extra tones are extraneous to the harmonic function heard.

Schenker quotes an example which shows a similar situation:

Example 27. Schenker, p. 141

J. S. Bach, Organ Prelude, C Minor:



Note that where the asterisk is, the A flat and C are held through this change in sonority:

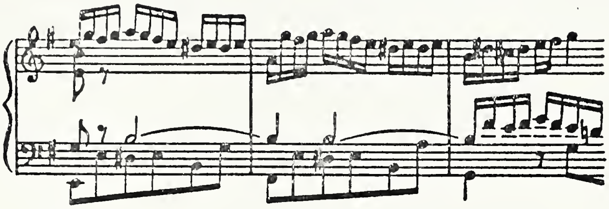
> Our instinct justly rebels against hearing, at the asterisked place, an independent scale-step, and this despite the fact that three parts have clearly converged here into a (diminished) triad.
>
> It was the composer who has indicated to our instinct the right way: for he continued the A-flat....It is more important, however, to note that even if the A-flat were not held over, the asterisked sixth-chord would have to be taken for a passing event, not a new scale-step (p. 142).

As with the Handel and Beethoven examples, the change in sonority does not herald a change in chordal orientation: in each case we hear the same harmonic tension governing the whole passage. This is what is meant by the organizing power of the Stufen. It takes several different sonorities and organizes them into one unit or sublimates the different tones to the harmonic orientation of one chord. This chord, which governs the activities of several chords or tones not part of the chord which does the governing, is the Stufen. What it effects is no change in harmony even though there may be change of sonority. The harmony has been enriched by voice-leading tones.

Another example of a passing sonority that is not given the designation of a Scale-Step but is sublimated to the greater context of another chord is the following:

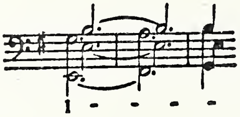
Example 28. Schenker, p. 142

J. S. Bach, Organ Prelude, E Minor:



of which he says:

> the construct, F-sharp, A, B, D-sharp, in measure 2 dissembles [gives the false appearance of] a seventh chord on B, in its second inversion. Yet the E, which is continued on each second and fourth eighth-note in the bass, as well as in each third beat of the descant, prevents us from hearing that seventh chord as such, i.e., as an independent V step in E minor. Correct hearing reveals only one scale step here, viz., the I (E,G,B), whose root tone, E, and fifth, B, are continued while the F-sharp and A, in measure 2, are to be considered as passing notes (in thirds or tenths respectively). This is shown by the following picture.



(pp. 142-143)

There are several points to be made about this example. The first is that emphasis is given to what the ear hears and not what the eye sees. The eye sees a number of tones which could be interpreted as a V^4_3 in the second bar of the example. But as Schenker explains, the E and B are held through the entire passage while the other voices move in parallel tenths from one triad tone of E minor to another triad tone of E minor, i.e., E-F-sharp-G and G-A-B.

In addition, the upper voice in the passage does not change but is exactly identical in bars one and two of the example: there is no change. So in addition to the sustained E and B in the lower voices, there is a sustained passage which revolves around E and G in the upper voices. Together, they form a sustained E minor triad. What is different about bars one and two of the example is that there is contrapuntal motion (as shown in the example of the Harmony cited above), passing tones between the chord tones of the sustained E minor triad. What we have then, according to Slatin is "two triads that differ essentially in origin (harmony versus counterpoint)."[62] The E minor triad is an actual harmonic force, but the seeming V^4_3 has no harmonic force as the product of voice leading.[63] She also points out that not only do these two chords differ in origin, but that they also differ in function. The one is the "goal" and the other is the "means" to that goal.[64] And that as a result, these two triads "differ in contextual meaning."[65]

Another point to be made about his explanation of the example is that it is not a succession of harmonies alone that creates motion within a piece of music. In addition to a succession of Scale-Steps, linear activity is also a source of motion. And this linear motion is not limited to the upper or middle voices, but the bass voice as well takes part in the process. The bass voice here

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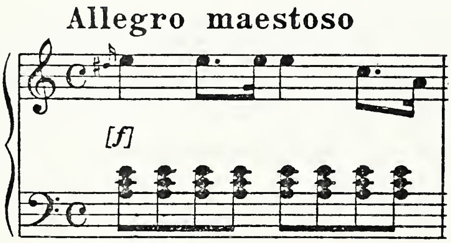
[62] Slatin, "...Schenker in Perspective," p. 57.
[63] See Jonas' footnote on p. 142 of the Harmony.
[64] Slatin, op. cit., p. 57.
[65] Ibid.

moving from E to G (via the F-sharp passing tone) fills out the tonal space of the first third of the E minor triad with a passing tone and thus participates in giving horizontal expression to the vertical phenomenon of the E minor triad. The net effect being that not only do vertical structures define the essential triad of a given passage, but the horizontalization of the triad is a factor to be considered as well.

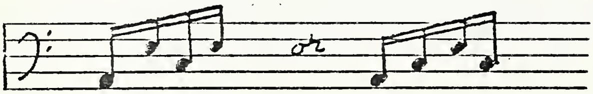
This is a factor found in many configurations of bass lines. That is, in order to express a certain chord as a harmony it need not always be present as a pure and simple chord as such:

Example 29. Mozart, A minor Sonata, K. 310



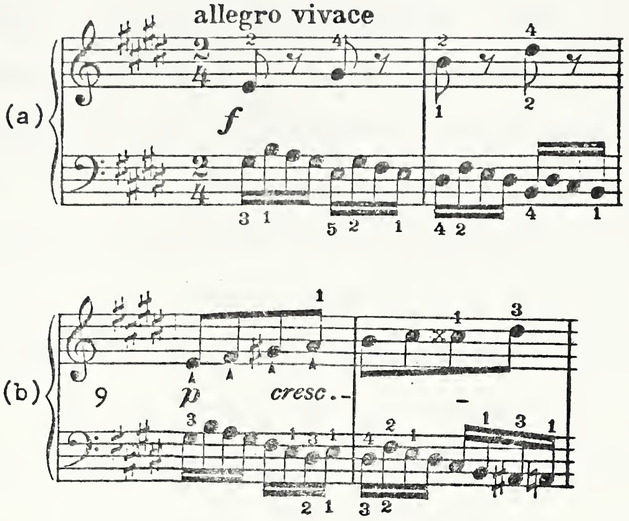
We still recognize it in either of these two "broken" forms:

Example 30. Broken Forms of the A minor Triad



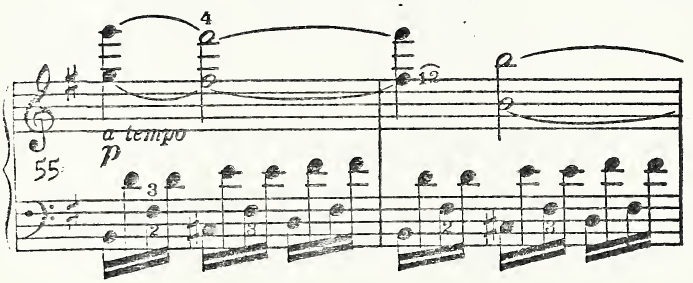
or in a form such as the following where passing tones fill out the chord tones:

Example 31. Beethoven, Piano Sonata Op. 109, 3rd movement, Var. III



The broken configuration when combined with passing tones to fill out the chord tones produces (or can produce) something like the following:

Example 32. Beethoven, Piano Sonata Op. 90, 1st movement



This example is of particular merit in discussing the point that not every sonority is to be considered a Stufe for in the first bar of the example we have a situation almost identical to the Bach example cited above (p. 91). The concurrence of the F-sharp in the upper voice with the C-sharp, F-sharp and E in the lower yields a

"dominant" harmony. Its relative situation is exactly the same as in the Bach example. In fact the only difference is that in the Beethoven example the passing configuration takes three beats and in the Bach example it takes two bars. In each case a single chord is given expression but it is filled out with voice leading between chord tones. The chord, an essentially vertical phenomenon, is given a horizontal expression by means of voice leading. And this horizontal expression takes place in the bass part, as well as in the upper voices. Thus, it would seem that both "melody" and "harmony" must be looked at from the viewpoint of succession as well as simultaneity. It does no good to simply look at which vertical structure has made its appearance. This structure must be looked at in the context in which it is presented and its relationship to the surrounding structures must be identified and defined. "Categorization accomplished nothing unless relationships within a specific context are clearly indicated..."[66] This is the whole point of Schenker's discussion.

In discussion later on in his Harmony, Schenker deals with the effects of this idea of context defining the real meaning of an apparent chord with respect to the cadential formula usually cited as I^6_4 - V - I. The question raised about the I^6_4 is whether or not it is a real I chord; e.g., would the progression II-I^6_4-V-I be heard as a succession of II, I, V and I Stufen?[67]

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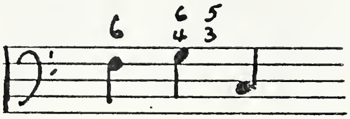
[66] Slatin, "...Schenker in Perspective," p. 57.

[67] See Harmony pp. 228-231; and cf. Mitchell, Elementary Harmony, pp. 124-125; and Forte, Tonal Harmony, pp. 68-69.

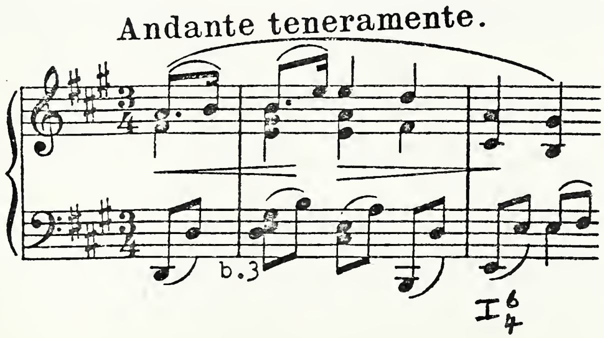
Consider this progression:

Example 33. A Chord Progression



The first chord is a II and the last chord is a I. The penultimate chord is a V. Now what about the one between the II and the V? According to the principle of chord inversion (each vertical structure can be identified with its root), this chord is aptly described as a I^6_4. But it is only a true expression of the parent chord[68] if the parent chord, or perhaps another inversion, could be substituted for it and still have the passage make harmonic sense.[69] Consider the following passage:

Example 34. Brahms, Op. 118, No. 2



and substitute for the labeled I^6_4 a I chord:

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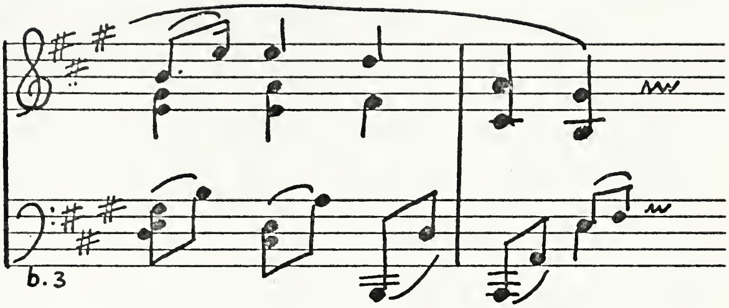
[68] The term "parent chord" is taken from Forte, Tonal Harmony.

[69] The author stresses "harmonic sense" for the insertion of a root or first inversion could mangle the voice-leading in context.

Example. 35 Example 34 with I Substituting for I_4^6



and the sense of the passage, harmonically, is ruined. It is clearly not the intention here that a I chord is functioning harmonically. It is the V chord that functions. The vertical structure which is labeled I_4^6 is the accidental result of two appoggiaturas (or in other cases, a suspension or some other form of embellishment).

> Obviously, it would make no sense to suppose that the artist would spoil the effect of the concluding tonic by introducing another tonic just before...(p. 229).

This is a clear case where the context determines the true meaning of a vertical structure. And here the vertical structure is not in function what it seems to be literally. For this reason, Mitchell and Forte,[70] following Schenker, say that the designation which best describes not only the event itself but the perception of it is

II (or another chord) V_{4-3}^{6-5} I

where the V indicates the Stufe, or the harmony, which is the active force, and the $^{6-5}_{4-3}$ indicates the voice-leading. By way of additional examples, one could experiment with the numerous cadences that follow

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[70] See note 67 above.

this pattern in Mozart and substitute the root tone at the "I_4^6" and discover that "I" is not what is meant at all.

This phenomenon is like the passing tone or neighbouring tone, in that it has no harmonic value in itself and is subordinate to the harmonically potent Stufe. Such tones serve to enrich the basic harmony with the effects of voice-leading. It is important to note that two basic kinds of voice-leading have been involved. The one kind, involving the appoggiatura and neighbouring tone, has only local effect. That is, there are immediate delayings or prolongings of a chord or tone accomplished by these voice-leading devices. The second kind was discussed in terms of passing tones between two triadic tones. Here it was said that linear activity was responsible for, in a sense, exposing the Stufen. By having the bass voice participate in the presentation of the triad (the Stufen operate as a force in the passage being presented in a successive or horizontal fashion), the bass voice itself operates like a second melody filling out the tonal spaces of the triad.

Schenker refers to this "filling out" of the triad at one point as the "unfolded step" or "auskomponierte Stufe".[71] Here the voice-leading literally composes out the triad. Like a complex equation that is summarized by a simple formula, so the processes in a piece can be summarized by a simple triad. To put it the other way around, the simple formula is revealed, worked out or extended by the complex equation which brings forth and exposes the latent complexity summar-

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71. See Jonas' note to p. 143 of the Harmony.

ized in it. So also the simple triad is prolonged, unfolded, or composed out into a passage which brings forth and exposes the possible complexity that lies dormant within it. Thus in order to have the effect of a triad as the basis of a passage, the voice-leading fills out the tonal spaces of the triad, and by doing so, exposes it, prolongs it, and sets it in motion as a horizontal force.

That such a thing occurs is not a simple attribute of the tones themselves and their intrinsic properties. Rather, the idea of _unfolding_, _prolonging_ or _composing out_ is one which has its origins in the psychology of hearing, or psychological acoustics as opposed to pure acoustics. Just as the appoggiatura "creates" a different vertical structure which is not heard as being an independent chordal phenomenon, so the effects of voice-leading create momentary phenomena which ought not be interpreted as independent chordal phenomena. The thing in each of these two cases that permits such an interpretation as valid and not just superimposed or "read into" the passage cannot be found in the nature of tones alone. Each tone and each simultaneity and succession of tones in itself is an entirely distinct and different phenomenon which remains singular and unique.

Where the possibility of this interpretation lies is in considering the auditor. Not that the auditor can be considered himself alone without respect to the sound he hears; for this would lead to a situation where the grasping of _Stufen_, or any other musical process, is no longer a grasping of how the piece itself works. Any arbitrary idea of interpretation would be held valid because it would be imposed by the auditor. This, quite simply, is not taking the

auditor into account: it is making him of account. That is, it is making him the determiner of what is to be considered in passing and what is to be considered of structural import. It is as if the music, the actual tones themselves, is irrelevant or secondary to the fact of his imposition of an interpretation upon them. This subjective view of the working of a piece of music (which was discussed in Chapter Two of this essay) is contradictory, for tones cannot be willed in and out of existence; neither can their function, if any.

The only premise possible for a solution as to how this interpretation is possible is to consider both the auditor and the thing heard. In what respect must each be considered? And how is this seen or observed in a piece of music?

In Chapter Two the basis of the supremacy of the triad and its position as the naturally given sound was outlined. It was based on the fact that sound waves interact with the perceiver to create actual sound, and that the implicit set of relationships (the partials) were only partially available to the human ear. That is, the first five or six partials were the only ones that could be held, and grasped distinctly as individual units. Thus only these could serve as the axiom of perception, as it were, for music. This being so, the triad acts as the constantly reiterated perceptual premise of musical art.

The nature of this interaction was explained in terms such that each of the interacters contributed equally, though differently to this naturally given sonority. The sound waves provided the material, as it were, and the human mind delimited its possibilities.
The mind sets the terms as to the extent this material could be used

as the basis of musical hearing.

In Chapter Three it was shown how this triad in turn set the standard for the scales of the pure system. In this case what was relied upon was the setting of the triad in a horizontal position. The triad, a vertical structure which is grasped as a simultaneity, was laid in a horizontal, or successive, or prone position. The other tones which filled in the tonal space between the triad tones were derived from the strongest tonal relationship possible that produced different pitch classes (i.e., 5th, not 8ves). Thus, in this abstract systematic context, the scale, or melodic or horizontal form of the triad was shown to be derived from the integrative power of the triad as understood from Chapter Two.

More exactly, the triad as the naturally given sonority and as the constantly reiterated perceptual permise of our musical perception requires that it be anchored or confirmed by fifths (as explained) if it is to act as that premise. Conversely, it could be said that the inherent organizing power of this "perceptual premise" is actuated and extended or given play in the selection of these tones (the other than triad tones). The triad in effect organizes the scale by making it fulfill the demands of the need of the triad to have itself confirmed. By having itself confirmed, the triad here is seen to wield an organizing or integrative power over certain musical occurrences. The scale rarely appears as the main musical material of compositions in a pure unaltered form, i.e., rarely do pieces progress ut, re, mi, etc. But the tones of a given passage can be abstracted into a scale form and their degree of conformity with it seen. The scale understood as

an abstraction resulting from the confirmation of the triad as an element at work in a composition provides a tool for evaluating a given passage. In particular, it provides a standard by which one can judge to what extent, and in what way, a passage reflects "the harmonic point of view in the melody itself" (p. 137).

Thus the triad can be seen as a power or more specifically an entity possessing a potency to act as an organizer of melodic material. Its potency is derived from the limitations of human perception of tone in that other musical events, if they are to be intelligible, must be seen in light of this limitation.

The potency that is realized in the above situation is not that of the triad as a whole, but rather, primarily, is that of each of the individual components of that whole. It is the triad tones, individually, that extend their power, individually, by means of fifth relationships. These tones, the tones of the triad, and no others are accorded this power because they are part of the naturally given sonority. But in this particular situation they do not act as a unit but as individual elements. The triad tones act individually weilding the power of the fifth over other tones. The triad tones do not act as a unit, i.e., as a triad. And herein lies the essential difference between the power of the triad melodically and the power of the triad harmonically.

Primarily, the triad is heard melodically as succession and harmonically as simultaneity.[72] While this simultaneity must be of some duration, it can be of any duration without affecting the

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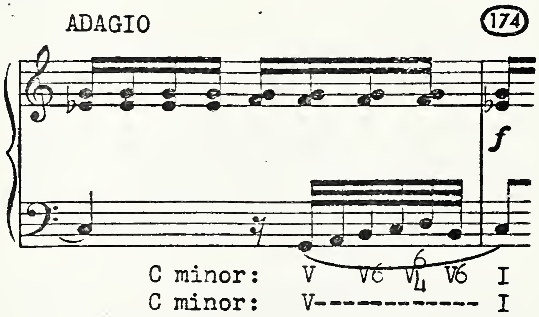
[72] Cf. Adele Katz, "Heinrich Schenker's Method of Analysis," The Musical Quarterly, XXI (1935), 313-315.

fact that it is a simultaneity that is being heard. In Schenker's analyses, only the harmonic function is indicated. Schenker merely indicates which scale step is operative. Inversions are not indicated, since these do not alter the power of the triad and its harmonic force. Whichever position the triad occurs in will be determined by any one of a number of factors that do not influence its power as a Stufe. Thus, a chord may change position, but its effect as an orienter of harmonic forces will not change. It is still the triad as a unit of simultaneously sounding tones, however they are arranged, that holds harmonic force over a passage of a composition. For example, in the following exerpt, the upper analysis would be beside the point, whereas the lower indicates most exactly what is heard:

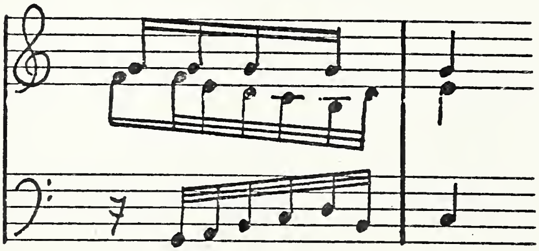
Example 36. Mozart, Phastasie in C minor, K. 475



One hears, in effect, one single triad, the V, sounding all the way through. Here is a prime example of what is meant by hearing the triad primarily as a simultaneity even though it is not present in a pure simultaneous manner. The power of the V Scale-Step holds all the way through, in spite of the numerous passing tones which are present between the chord tones. What this means is that the triad as a unit holds all the way through this figuration. The fact is that one does not actually hear V to V^6 to V^6_4 to V^6 to I. One hears simply V-I. Everything else that occurs is in passing. The events that occur in passing serve only to "enliven" the duration of the triad. This enlivening of the duration of the triad does not affect the fact that it is primarily an expression of a chord; a simultaneous event.

Now, this being so, the addition, say, of another voice to the passage thusly:

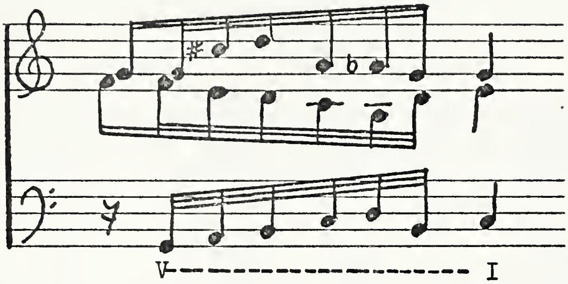
Example 37. Example 36 with an Additional Voice



V---------------I

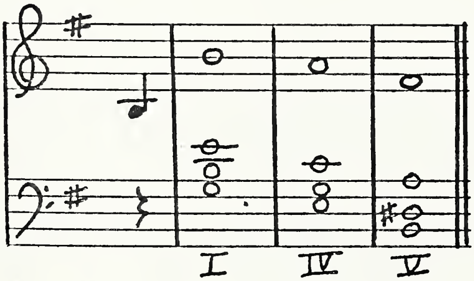
would also have no effect, for the passage would still sound as basically V-I. Even if enough contrapuntal lines were added such that each vertical sound was a "chord" of some recognizable type, this would still not alter the fact that what is heard is simply V-I:

Example 38. Example 36 with Two Additional Voices



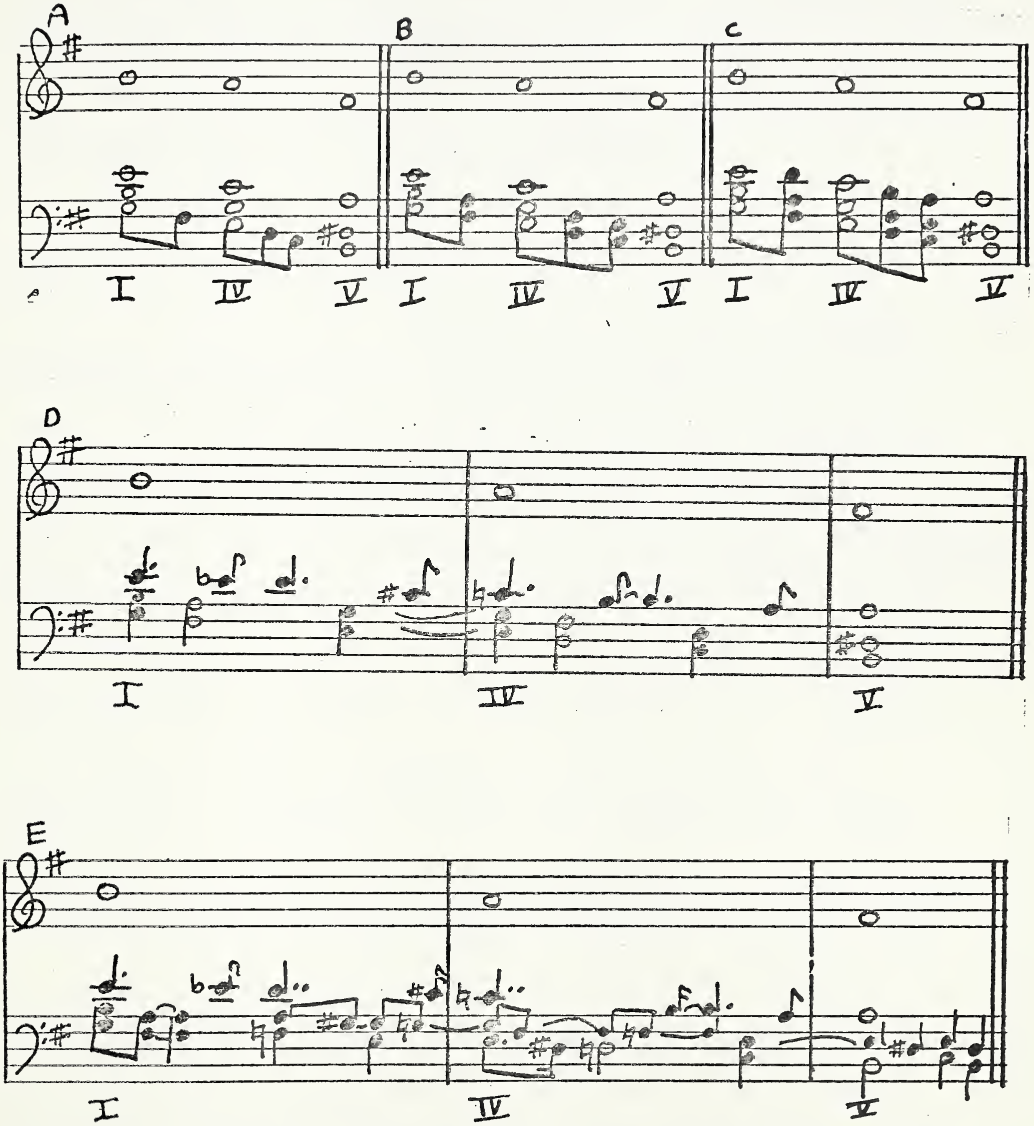
Or for that matter consider the following chord progression:

Example 39. A Chord Progression



Now consider each of the following step by step expansions of this progression as follows. The same point made with the Mozart example is the point being made here. The addition of passing material has the effect of enlivening the duration of the triad but does not affect the fact that it is primarily the expression of a single chord.

Example 40. Step by Step Expansion of Example 39.



In each case the passage from one chord to the next is prolonged by means of adding more and more counterpoint, suspensions and the like. But each part of the passage is the expression of one chord and one chord alone. Thus such passages can be seen to be exactly the same as a chord with an appoggiatura in principle. The only difference is the length of time taken to effect the delaying.

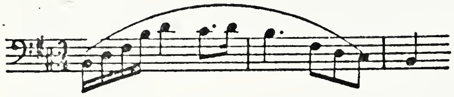
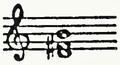
The hearing of one chord as the harmonic orienter for a whole passage is a distinctly psychological approach to hearing and not an intrinsic-acoustical one. The single triad as a psycho-acoustical phenomenon whose duration can be enlivened by passing tones and the like is but another form of the principles set down in Chapters Two and Three. The triad as the "chord of Nature" (the naturally given sonority by virtue of the properties of the tone, and the limiting factor of our perception) is given expression melodically, as the scale (succession), and vertically, as a chord (simultaneity), which must last _some_ time. It can endure as a force, even if it is not sounded when a passage between one _Stufen_ and another is effected by a prolongation or composing out of some kind. What Schenker asserts is that we hear all these other phenomena, between the actual sounding of the chord which states the _Stufen_, as phenomena in passing. Just as the scale is a passing from one tone of the triad to another, so a harmonic excerpt is a passing from one _Stufe_ to another. Just as the triad tones have pull, or sway or power over the other tones in the scale, so the triad, as a unit, has a pull or sway or power over the other apparent triads and voice-leading effects in a given passage.

This is not something that can be accounted for in any of the more traditional or popular theories. They are concerned with labeling each vertical structure. In the last case cited, a simple I-IV-V chord progression was extended by a series of passing tones and suspensions. As in the Mozart example cited just before it, it would be amiss to regard each of the tones as separate Stufen. Our ability to regard these as mere passing phenomena, because of our grasp of the triad as the essential unit to which all other phenomena must be related, is put into effect in the case of scales and in the case of harmony. In the case of scales, it is the triad tones as individual phenomena that hold the potential. In the case of harmony, it is the triad tones as a single unit, a triad or chord, that hold the potential. Because the triad is a complex of three tones, the number of variables and possibilities of alteration are greatly increased and thus the range of harmony can be extended by suspension, passing tones, etc., most readily. It would be concrete bound to consider each alteration and passing tone as a separate isolated phenomenon when an alteration is an alteration of something; a passing tone is a passing between two somethings and so forth for the many other devices.

As we recognize that motion is the motion of something, that color is the color of something, and that weight is the weight of something, so, too, we should recognize that an alteration is an alteration of something (and so forth) without considering it as an isolated incident without relation to anything else.

Harmonic events must be looked at within their context. This

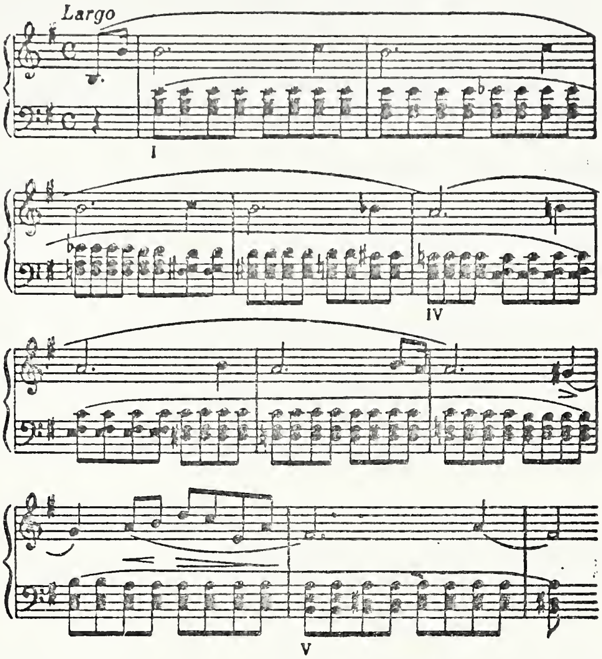
means that they must not merely be seen as isolated incidents but as parts of a whole. But as we have seen, a whole, or section of a whole, can go beyond mere statement of a harmony and be the working out of a harmony, or the prolongation of it.

> In practical art the main problem, in general, is how to realize the concept of harmony (of a triad or seventh-chord) in a live content. In Chopin's Prelude, Op. 28, No. 6, thus it is the motif:
>
> 
>
> that gives life to the abstract concept of the triad, B, D, F-sharp; whereas
>
> 
>
> by itself would have the effect of an assertion merely sketched for the time being (pp. 211-212).

Similarly, the cited I-IV-V progression on page 105 would by itself "have the effect of an assertion merely sketched" until it is given "a live content" by the voice-leading so that the potency of the triads is unfolded and their power prolonged. That above cited chord progression (Example 39, p. 105) becomes the following when enlivened by the voice-leading:

Example 41. Schenker, p. 148

Chopin, Prelude, op. 28, No. 4:



The mere playing of the chord progression I-IV-V in itself does not reveal the full power of music. It is only the composing out of these harmonies wherein their potency is actualized that a sense of them as Stufen, as harmonic orienters and as vital forces is revealed.

> Thus each harmony is not merely asserted but unfolded and demonstrated in this unfolding; as content and harmony join each other, the feeling for the scale-step awakes in us (p. 212).

And even the assertion and unfolding of a triad, a single triad, will require further harmonic clarification, "by virtue of its trivalence or six-valence the triad may belong to three or six different keys" (p. 213). Thus a number of chords must be present to define which tonality a particular chord represents. The composing out releases the

potency of the triad, but that it is not enough to establish itself as belonging to one tonality or another is quite evident in that a triad can belong to at least six different keys (given mixtures).

> Thus harmony by itself calls for a further clarification, which, in turn, creates in us the need and expectation of a continuation--in us, and, naturally, in the composer as well (p. 213).

Thus for Stufen to be operative at least two factors must come into play. The first is that the harmony must be prolonged or composed out or unfolded so that the "feeling for the scale-step awakes in us," i.e., so that a chord is enlivened or its potency is actualized. The second is that its meaning must be clarified by connecting it with other scale steps so that a context, a tonal context is established for it.

However, glancing at the examples provided by Schenker in his Harmony, one notes quite often that the Stufen indicated have a vertical appearance only and are not composed out or prolonged. Though, all have their meaning clarified by the establishing of a tonal context. So it would seem that the unfolding of a particular triad in itself is not the only criterion for judging Stufen. What is apparent from the examples he gives is that triads that have the function of defining the tonal context are the ones primarily designated as Stufen. These are the ones that function to establish a tonal center, though, to be sure, if a certain harmony was worked out and exploited in some fashion so that it gathered a number of sonorities under its control, it too would be designated a Stufe. But even so, not just any could be used in this fashion for if it is to have meaning in a tonal context, it must relate to the tonality

at large and contribute to its sustenance or temporary modification in some form. The essence of musical composition is tonal motion. The Stufen are the organizers of tonal motion. Tonal motion is either purposeful or purposeless; if purposeless, it destroys the integrity of the piece; if purposeful, it contributes to the piece's integrity. The point being, only triads which contribute to the integrity of the piece, and are purposeful and organize the tonal motion of a work, are the ones that may be designated as Stufen.

The vitalizing of the triad is necessary to effect power. The vitalizing takes the form of extending over a period of time a triad's force as a harmonic orienter. The process by which this is done is named "composing out" and the result is a "prolongation" of a triad such that a number of sonorous events are understood and heard to be under the "guiding" influence of that prolonged chord. These chords are called Scale-Steps or Stufen. The function of a chord cannot be arbitrarily assigned by looking at it on paper, so to speak, but must be determined by the context in which it is heard. Thus a chord may have only passing significance being the chance product of voice-leading. The Stufen approach to musical hearing is one born of a psychological approach to hearing. The source of the Scale-Steps comes from the scale, which in turn comes from the triad which is the naturally given sonority caused by the interaction of sound wave and human perceptual faculties

In general, it is the recognition of this long range harmonic power of the Stufen that accounts for the great variety, length and profundity of the compositions of the 18th and 19th century. With

the recognition of its organizing power, more musical content could be extracted from each harmony, and full play to the complexities of voice leading given, without loss of the clarity and comprehension of the whole.

> All roads, then, as they take us away from the pristine strict technique of counterpoint, lead us toward the new goal, the creation of broader content. The idea of the triad comprises a longer series of tones; its own unity bestows on them, despite their length, a unity easy to grasp; boundlessly ever new conceptual material may be accumulated: for the harmonies will always articulate the horizontal line as well into smaller units and thus any danger of chaos will be obviated (p. 173).
>
> The more freely he handles his voice-leading, the more clearly must the artist elaborate this step progression (p. 174).

It is, for example, the recognition of the triad as a harmonic force to be ever expanded that lies at the basis of the "Prelude" to Wagner's Das Rheingold. Here is perhaps one of the most clear-cut examples of what it means to unfold a single chord or to compose it out or to prolong it:

> From what has been said so far, it should be clear enough that the time occupied by a scale-step is variable. The listener must not be deterred, accordingly, either by excessive length or by overmodest brevity, from assuming a scale-step if there are other indications in the composition which plead for such an assumption. We may recall, for example, the gigantic proportion of the E-flat major step in the Introduction to Wagner's Rheingold or the broad deployment of scale-steps in the Prelude to Die Walküre, etc. (p. 152).

Or for that matter, the excruciating prolongation of the dominant chord by means of an arpeggiation in the Prelude to Wagner's Tristan und Isolde.[73] These examples show to what great lengths one can go with a single chord by surrounding it with a web of melodic

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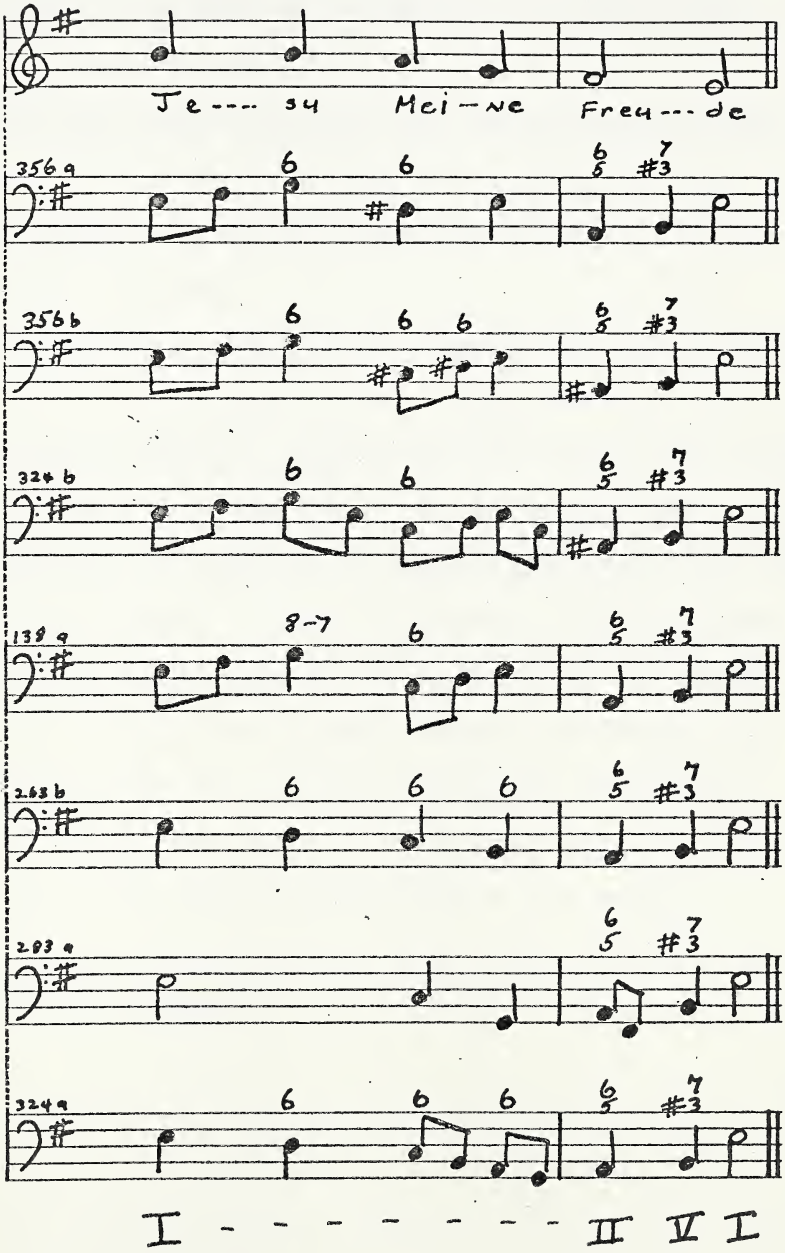
[73] See William J. Mitchell, "The Tristan Prelude: Techniques and Structure," The Music Forum, ed. Felix Salzar and William J. Mitchell (New York: Columbia University Press, 1968), pp. 169-178.

artifices.

The 371 four-part chorales of Bach have most often been studied from the viewpoint of observing how many different harmonizations of one tune is possible. In addition, they are instructive for a different reason. They can also reveal how many different ways one harmony can be worked out. They show how many different ways one _Stufe_ can be prolonged. We take as our example seven of the different harmonizations of the chorale tune "Jesu meine Freude."

Example 42. Seven of Bach's Harmonizations of the Chorale Tune "Jesu meine Freude"



In each case, the first bar is a composing out of the E minor triad. Each of the solutions is slightly different showing what great variety of workings out is possible for a single Stufe in such a short and modest phrase.

Both the Wagner examples and this last series from Bach attest to the enormous possibilities of working with Stufen and how only the concept of Stufen can account for both their dynamic quality and their multifarious variation.

In sum, the Stufen are chords that can gather under them a number of sonorities that have no harmonic value. These sonorities serve to prolong the harmonic value of a single chord which acts as the harmonic orienter for a passage in a composition. It, in effect, summarizes the passage harmonically. The Stufe is prolonged so that its potency, and thus its power as a harmonic orienter, or summarizer, can be realized. Thus, chords designated as Stufen are the tonic, chords that confirm the tonic, or chords that receive special attention and working out.

The actualization of the potential of the Stufen enlivens the duration of the chord, unfolding the latent possibilities of action that lies dormant in it. The unfolding process can be further emphasized by means of tonicalization, a process that will be discussed in the next chapter.

CHAPTER SIX: CHROMATICISM AND TONICALIZATION

The section in Schenker's Harmony dealing with chromaticism and tonicalization is, in many ways, a very confusing section in this work. There is a mixture of conventional ideas and radical breakthroughs. The concern with vertical structures and their alteration is a remnant from older theories that he would reject later in other works. Jonas notes that "Schenker would have relegated alteration to the sphere of voice-leading and not to that of harmony."[74] So although this section contains evidence of the radical breakthrough that would later crystalize in his theory of Urlinie-Ursatz, it is confused with concepts that arise from a purely vertical point of view.[75] Our focus will be on these new ideas that appear and how they indicate a further extension of the principles laid down in the preceding chapters.

The greater than momentary value of a harmony has already been explained to some extent. In the course of a composition, because of the long-range power of harmonic orientation manifest by a Stufe, the Stufe will seem to be the center or defining point of the harmonic and voice-leading activity. To be a Stufe is to be the originator and source of motion--the fountainhead of the surrounding activity. As such, "each scale-step manifests an irresistible urge to attain the value of the tonic for itself as that of the strongest scale-step" (p. 256). Schenker clearly perceives the tonic as the strongest tone.

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[74] See Jonas' footnote on p. 277 of Harmony.
[75] Sonia Slatin discusses this in some detail in Chapter III, "...Schenker in Perspective."

It is not necessary for a Stufe to attain the "value of the tonic for itself" in order to have its power as a Stufe. But as the dominator, or central chord of an area of tonal activity, it has that urge to be so.

> If the composer yields to this urge of the scale-step within the diatonic system of which this scale-step forms part, I call this process tonicalization and the phenomenon itself chromatic (p. 256).

The process of elevating a Stufe from its position as merely a Stufe to that of a Stufe which "usurps...the rank of the tonic" is tonicalization; that is, the Stufe is made to act as a tonic. The process results in another Stufe ranking as a tonic and causes additional tones to be considered part of the system which goes beyond the bounds of mixtures. As such, this elevation of the Stufe is more than a diatonic interchange of tones proper to the major-minor system but rather involved adding "foreign" tones to the diatonic system. For this reason "the phenomenon itself" is called "chromatic"(p. 256).

Note the implicit definition of chromaticism here, namely, the use of tones not part of the diatonic major-minor system. Or more precisely, the diatonic system is the major-minor system which is the resource of the major and minor modes or/and their mixtures. The The phenomenon of chromaticization is the use of tones that lie outside the pure major-minor system. Seen in this light, chromaticism and tonicalization represent additions to the diatonic system.

The diatonic or pure major-minor system lies at the base of musical art. Chromaticism and tonicalization are occurrences within the diatonic system or extensions of it. They are not destroyers of

it. But all in all they are a distinct modification of the diatonic system and must be subservient to it. In short, it is an ornamentation of diatonicism.

However, as an ornament this does not mean that it is purposeless. But as an ornament it does mean that its effects ought not to be either treated or understood as fundamental. Tonicalization is a method to introduce other tones, tones actually foreign to the real tonic, into a diatonic composition, i.e., one in the major-minor system. Only by tonicalizing Stufen other than the tonic could tones foreign to the tonic be brought in in such a manner so that they could be understood to have a coherent relationship with the whole. Brought in simply of their own accord, they would have a disruptive influence for there would be no chord to which they would be related. But if these chromatic tones are brought in by having them establish a relationship with some chord, they are given a coherence, or a defining context, which insures their intelligibility.

In harmony, intelligibility is defined in terms of Stufen, the harmonic orienters of a passage. If harmonic intelligibility is to be given to chromatic tones, then it must be done in terms of relating these chromatic tones to a Stufe. When a Stufe assumes the role of a tonic, i.e., is tonicalized, intelligibility is given to the chromatic tones in terms of the Stufe tonicalized.

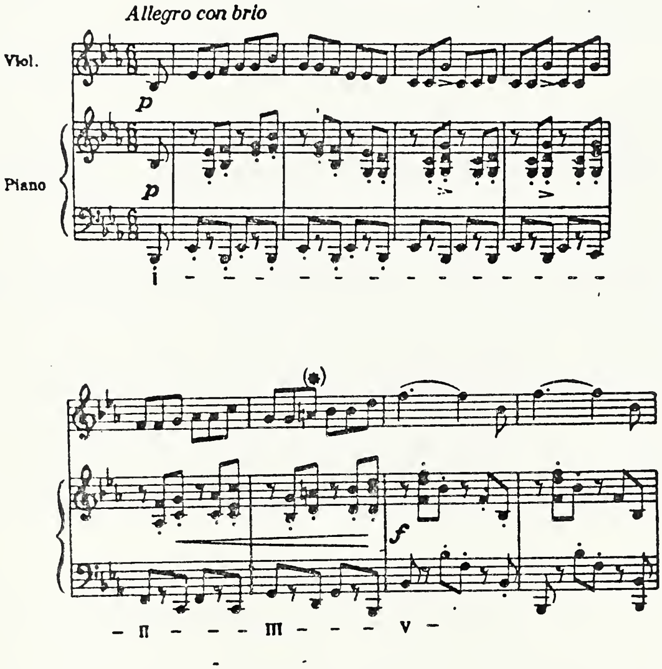
There are two forms of tonicalization. One is called Direct Tonicalization and the other Indirect Tonicalization. Direct tonicalization takes place when the chromatic tones are introduced on a Stufe directly and without antecedents. Indirect tonicalization takes place

when chromatic tones are introduced by means of antecedent events of some kind (the term currently applied to this latter is "Applied Dominant" or "Secondary Dominant").

Schenker gives as an example of direct tonicalization, a portion of Brahms' Horn Trio:

Example 43. Schenker, pp. 260-261

Brahms, Trio, op. 40, Finale:



Notice the asterisk in the sixth measure quoted. The A-natural there is obviously not part of the E-flat tonality and does not come as a result of a mixture with the minor form of the mode. It is not any other form of voice-leading device that brings about this tone.

The first four bars have "I" indicated as the Stufe. The next has a II and the next (the bar in question) a III, and the last two have V indicated. Bar six can be considered as a bar tonicalized in G. The G, in the minor form, is given the temporary power of a tonic and as such effects the chromatic alteration of the A-flat, which is foreign to its (the G's) domain, to the A-natural. The G there usurps the main tonality for that one bar and achieves, or rather assumes, the status of a tonic, suddenly and without preparation. Hence it is a direct tonicalization.

Schenker gives several other examples which show the same direct tonicalization. Other chords such as IV, II and II(Phrygian) as well as III, are shown to be capable of tonicalization and that this can be effected by even one sixteenth-note. Duration does not matter, in effect, for a direct tonicalization to take place. Examples of this kind could be multiplied at length and would demonstrate the possibility of "exploiting tones and harmonies that are indigenous to the assumed tonic itself but are actually foreign to the real tonic."[76]

Indirect tonicalization has the same effect as direct in that "the scale-step is able to satisfy its yearning for the value of a tonic..."(p. 261). The difference is that direct tonicalization satisfies this yearning "alone," whereas:

> Much more frequently, however, it happens that a scale-step, to satisfy such yearning, makes use of one or more preceding scale-steps. Tonicalization, in such cases, is effected indirectly (p. 261).

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[76] Slatin, "...Schenker in Perspective," p. 125.

This process (the process of using the so-called "applied" or "secondary" dominants) is so common that no examples will be cited. And Schenker's explanation of it is not in any way unique; that is, the actual technical description of placing the V, or VII^{o7}, or V^{7} in front of the *Stufe*, or having a series of chords that lead up to one of these is no different from those found in any one of the available texts at that time or in this present time. What is different is his *interpretation* of the relationships and in this regard Slatin's comments are worth recording at length:

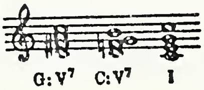
> The difference in Schenker's interpretation enters, to a large extent, with the role of time and context in the determination of the meaning of such relationships. With such factors, the differentiation between "apparent," surface meaning and "real," fundamental meaning emerges.
>
> In conventional harmonic analysis, in which two chords in succession, in and for themselves, regardless of origin and of overall functional significance, were considered a sufficient criterion of meaning, the artificial assumption of a Dominant-Tonic relationship could be, and usually was, considered ample proof of modulation. In an analytical method which differentiates between chordal weight and importance according to origin and function within a context, and in which aural perception in terms of musical time-span rather than visual appearance, or isolated, momentary aural impressions *per se* become the guides to meaning, the criteria must of necessity change. The assumption of real Dominant-Tonic rank, says Schenker. The function of this association in relation to the entire situation and the surrounding activity must support the contention of a newly acquired tonic rank, and clarify the meaning of a progression. That is, it must be verified and confirmed by the context preceding and following the immediate succession. Unless such confirmation exists, we are dealing with an "apparent" rather than with a "real" harmonic meaning. [Section 140 ff.] Schenker continues his examination of the Applied Dominant techniques with other observations which are still more novel for the period in which the *Harmonielehre* was written. For example, he notes that so strong and of such importance is the contextextual role of the tonic and dominant harmonies in the perception of harmonic meaning that even a seventh added to such chords has no effect upon their fundamental meaning and status, providing the rest of their environment confirms their respective

status.[77]

Or, in brief, applied dominants produce simulated tonics, not real ones. And the presence of an applied dominant-simulated tonic relationship does not entail a modulation but only a momentary reinforcing of a Stufe, i.e., an "apparent" rather than "real" harmonic meaning. These so-called applied relationships are of passing importance to the overall unity and context of a passage. Thus while a passage may have one or more applied dominants, it will still be under the aegis of one basic chord and hence be of local or passing interest and function only.

Example 44. Schenker, p. 263

6. Indirect tonicalization does not mean real modulation. Therefore Richter erroneously calls



G major and C major, instead of simply C major: $\mathrm{II}^{4}_{\sharp 3}$–$\mathrm{V}^7$–I.

In other words, the tonicalization is a strong motion but not that strong. It is strong enough to emphasize the tonicalized Stufe but not strong enough to entirely usurp the overall power of the actual tonic.

The principle should be clear enough. The principle is that chromaticism originates and functions to emphasize Stufen but does not contradict the diatonic system.[78] Jonas notes that the idea of chromatic effects or chromatic change in the foreground with

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[77] Slatin, "...Schenker in Perspective," pp. 127-128.
[78] Ibid. pp. 147ff. Here some details on the relationship between Schenker's views and the German Figured Bass School are documented.

an understood diatonic framework as the origin or support for this chromaticism is what led Schenker to his theory of layers.[79] Schenker says:

> Chromatic change is an element which does not destroy the diatonic system but which rather emphasizes and confirms it.
>
> Its point of departure is the diatonic system, whence apparently it moves away; but through the byways of a simulated tonic it returns to it (pp. 288-289).

The idea of the diatonic system as the point of departure, or substratum, if you will, from which, or upon which, chromatic workings are erected very clearly points to the idea of levels of interpretation, or layers, and the idea of a background and foreground. These ideas culminated later in his theory of Urlinie-Ursatz but their origins can be seen here.

Also, Schenker's idea of monotonality emerges in the passage cited above. The diatonic background of a whole piece is understood to be the tonic and all changes that occur within a piece are seen to be chromatic working erected upon this background which may challenge, but never (legitimately) supplant, the diatonic background:

> The total content of a composition basically represents a real and continuous conflict between system and Nature...(p. 288).

System here means the diatonic system, and Nature here refers to the fact that indirect tonicalization takes place via a major triad or seventh preceding the tonicalized triad thus usurping the system. For example, in C, to tonicalize the V step, F-sharp is introduced making the II chord a II#3, a major triad (or $\mathrm{II}^{7}_{\#3}$). F-sharp is contradictory to the diatonic system, but represents the triumph of nature because

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[79] See Jonas' footnote to p. 288 of Harmony.

it introduces a major triad where a minor triad ought to be, and achieves for the dominant a root-tone-quality.[80] The dominant itself is not the root-tone for a piece; the tonic is. And by extension, tonicalization occurs throughout a piece and thus constantly challenges the central power of the tonic, but in the end all such tonicalization give way to the final authority of the tonic.

Chromatic change, then, does not wreak havoc upon the diatonic system but enriches the tonic, and the vitality and "egotism" of the tone are shown further by its ability to enter into relationships with more tones and still dominate them.[81] A series of harmonic challenges leveled against a tonic will test, when the tonic ultimately reigns supreme, the strength of the tonic and has the effect of unleashing its potency. These challenges serve to "emphasize and confirm it [the tonic] (p. 288)." So Schenker writes, "for the sake of the diatonic system itself we can never write too chromatically" (p. 289).

Now despite these ideas, Schenker still maintains in this work that there is something called a "real modulation," i.e., cases where "a composer deliberately abandons a certain diatonic system" (p. 299). This would seem to contradict what has been said above, and it does. After explaining that all "apparent" changes in key can be understood as a broad scale deployment of his concept of Stufen, he turns around and asserts, on the contrary, that there are real modulations or real changes in key: "Modulation means a complete change from one key to

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[80] Note here how careful Schenker's wording is. He does not say that the Stufe in question becomes a tonic, but rather has a root-tone quality, once again emphasizing the passing nature of such phenomena.
[81] See section 38 of the Harmony and Chapter Two of this essay.

another. This change must be so complete that the original key does not return" (p. 321).

On such a definition, for example, a classical sonata does not modulate for the original key does return. A change in key from tonic to dominant is never fully consumated because of the return to the tonic.

Evidently this section of his work was giving him troubles because it is such an obvious contradiction, one which he later resolved as early as 1925 in his first Yearbook:

> Each composition is the composing out of a triad which extends from a background Basic Structure by means of prolongation and diminution to a Foreground structure.[82]

But nonetheless, that contradictory presentation of the idea of tonicalization is still present.

In spite of this contradiction,[83] what is evident is the long range sense of hearing which manifests itself in the concept of Stufen. The ability to hear certain events as being of a passing, transitory nature, and subordinate to some other force over a long range, is a significant step forward in his thinking and music theory in general.

> Even where chromatic changes are applied to it, the scale-step reveals itself as the spiritual and superior unit as we defined it in its diatonic form (section 78); i.e., the obligation to return to the diatonic system does not imply any restriction as far as the duration of the chromatic scale-step is concerned. This duration remains as variable as that of a diatonic scale-step: it vacillates between a minimum and a maximum, as far extended as we can imagine(p. 294).

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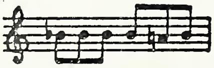
[82] This passage is cited in Jonas, Einführung, p.112 as being from Schenker's Yearbook, 1, S. 189. "Sache des Komponisten ist die Auskomponierung eines Klanges, sie fuhrt ihn von einem Hintergrund-Ursatz uber Prolongationen und Diminution zu einem Vordergrundsatz."

[83] There are other contradictions such as citing a pattern of modulations (p. 299) that lack the necessary confirmation.

The conceiving of music in such long range terms is something that was completely foreign to that time and is only barely making headway today. "It is possible that in this early period of his musical investigations, his [Schenker's] ability to hear in broad harmonic spans may as yet not have reached its maximum capacity."[84]

The fact that he is hearing in broad harmonic spans is an astonishing achievement in itself. It is the hearing of broad Stufen that enables him to hear tonicalization as a local event, i.e., as one which does not disrupt the essentially diatonic framework and system. That is to say, he does not hear every tonicalization as a "modulation" even in conventional terms.[85]

This is true on a larger scale, as well, as witnessed by his discussion of the second theme group of Beethoven's Sonata in E-flat Major, Op. 7. He criticizes the noted 19th-century German music theorist Adolf Bernhard Marx, who interpreted the section starting at bar 79 ff. as being in C major, i.e., as an independent strain in the tonicalized C. He quotes Marx as saying:

> ...that sequence of eight notes continues and must grow, in movement and dynamic, up to the point marked by ff, at which point the original movement is resumed. The subsequent III strain undulates in calm abundance and with milder motion.... Its continuation brings a return to the first motion, in which the phrase
>
> 
>
> re-enters with vim (p. 297).

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[84] Slatin, "...Schenker in Perspective," p. 134.

[85] cf. page 123 of this Chapter.

and adds

> This shows that Marx considers the inserted C major as an independent strain! (p. 297)

But despite the surprising diminished seventh in bar 79 on a *fortissimo*, and the subsequent motivic elaboration, "neither the harmonic nor the motivic criteria are sufficient here to suggest a real independent C major key" (p. 297). There is no confirmation of the key, for in bar 89 ff. there is a sequence that leads into B-flat directly.

> But if it is no real C major, what else should we see in this apparent C major? Evidently nothing but a chromatically elaborated scale-step of B-flat major...so that the sum total of these 10 measures must be seen quite simply as a combination of these two scale-steps in B-flat major, in a chromatically changed state (p. 296).

The ability to hear this whole section as being the perceptual equivalent of an applied dominant relation is a marvel. And again, it attests to the idea of chromatic alteration and tonicalization as being "local affairs" which do not disrupt the main diatonic flow and which serve, rather, to enrich it.

CHAPTER SEVEN: CONCLUSIONS

We have sought to connect the three chapters of Schenker's Harmony, the chapters on the major-minor system and mixtures, on the theory of Stufen, and on chromaticization, by showing how each is a manifestation of a single principle, namely the actuating of the potential of the heard or sounded tone. It was shown how two potencies, the human mind and sound waves, when actuated together, i.e., when they interacted, caused the production of the experience of sound and that one of the results of this interaction was that the partials became subject to the limitations of the perceiving powers of the intellect. That is, only the first five or six partials became available to the ear as directly intelligible elements. The triad, which is the result of abbreviating the first five or six partials, was then called the sound of nature (Die Nature Klang) or the naturally given sonority which formed the permanent perceptual backdrop against which all tonal elements are measured. It should be noted here that the element of human psychology that this brings into play, in addition to the ones noted, is the power of memory. To say that the triad forms a perceptual backdrop is a way of saying that the triad remains in the memory.

The first formulation that results as the effect of our memory of the triad is the major scale which Schenker, as noted, calls the Natural System. He put forward two arguments for the construction of the system, one of which was rejected, and the other, based on confirming (or, at least not denying by tritones) the other tones of the scale by upper and lower fifths, was accepted. Or put another way,

the triad resides in our memory and the other tones confirm it by entering into the strongest possible aural relationship with it, viz, the fifth. Or yet another way of stating this is to say that the potency of the triad tones as fixed members in our minds is actuated or confirmed by the supporting fifths. The influence (actuated potency) of the triad tones is then seen to extend beyond its immediate configuration to include as part of its domain tones other than those which make it up.

Another irreducible phenomenon, the alteration of the major third to a minor third, was then presented as the basis for forming the so-called Artificial System with the same lines of argument as presented in the above paragraph applied to it. As noted, both Schenker and Tovey consider the alteration of the third in the triad to be a change in character but not a change of tonality. Thus the stability of the chord as a tonal law giver remains even though its character may be variable. Because of this, the power of the tone is increased to encompass both the tones of the major and those of the minor systems so that the most proper designation of a tonality is not (say) C major or C minor but C$\frac{\text{major}}{\text{minor}}$, or more simply C. This indicates that the C as a central generating tone is significant, whereas its particular character is not, with respect to tonality.

In these discussions and the following ones throughout his *Harmony* (not to mention his later writings as well) Schenker talks incessantly of the life of the tone (*Tonleben*) and uses an assortment of what were designated as "Biological Analogies." Recognizing that in purely physical terms it is impossible to account for the *élan*

vital of a composition technically, he used these analogies to account for this extension of the power of the tone (actuated potency) and triad beyond its immediate configuration. The concept of the tone and triad as "vital" entities led to his conception of the triad extending its power or being actuated harmonically. This is the essence of his concept of Stufe.

The Scale-Step is a harmony which is "felt" or understood or experienced throughout a passage where the sonorities may vary and acts as the harmonic orienter of a passage. Accordingly, the principle enunciated by Schenker was that one should not confuse the chord C with the Stufe C. Not every chord acts as a harmonic orienter but rather is often subservient to another chord. This implies his later theory of "layers" or different orders of activity. Its simplest example was that of the so-called cadential I^6_4 where it was shown that the meaning of the chord could not be equated in either form or function with a tonic Stufe; a fact which is verifiable by experimental substitution. The chord was seen as subservient to the dominant Stufe. Thus it was shown in principle how one chord could be subservient to another chord which acts as the harmonic orienter or Stufe. It also shows, further, that the function of a chord cannot be determined by its vertical structure alone but must be looked at in context in order for its precise function to be properly explained.

This principle was then extended to show how many "chords" were subservient to one central harmonic orienting chord, i.e., a Stufe. These additional sonorities were seen to "prolong" the Stufe by the process of composing out or unfolding. The Stufe is literally unfolded

(its potential actuated) or made to extend by basically contrapuntal means, i.e., harmonization of passing and neighbouring tones, on the one hand, and more complex formulations involving the participation of the bass line in the process of voice-leading. He saw this process as "giving life" to the abstract concept of the triad. The Stufe becomes vitalized by the unfolding process and its power is actuated by it and the chord itself prolonged. This idea enabled him to hear large areas of a work as single units as organized by single chords.

As the center of harmonic activity, a Stufe acts like a tonic (a point of departure and return) and thus seeks to have itself established as a tonic in order to strengthen its grasp of the subservient tones. The process whereby a Stufe acquires the (temporary) power of a tonic is the process of chromaticization and the result of the process is tonicalization. Tonicalization is seen as a means of strengthening a Stufe and it effects the inclusion of tones foreign to the central tonic by bringing them in as part of the (temporary) "tonic." Thus by means of tonicalization, the central tone is given a diversity in an orderly and logical fashion through the chords tonicalized, and rather than weakening it, the central tonic is strengthened, because the range of the actualization of its potential is increased. The tonicalized areas act, in effect, like negotiators of the other (chromatic) tones which would properly be unavailable to it (except as chromatic passing tones). By being brought into the system by connection with a Stufe, these chromatic and therefore dissonant tones (i.e., foreign to the pure system) are

temporarily transformed into consonant tones. This occurs because the Stufe is temporarily transformed into a tonic-like area.

What emerges from all of this is a complex, tightly built systematic explanation of the tonal forces within a composition. The tonicalized area and its chromatic tones are subservient to the central tonic chord which is derived from the nature of the preception of tone and its delimitation by the human intellect.

The further working out of these ideas occupied Schenker for the next 34 years of his life and were continuously refined, but their essence did not change. The complexity of his understanding, as shown in the Harmony, is found in no other approach. One marvels at the degree to which he extended these principles in his later works. But all of those ideas are intimately connected with his understandings of the human perception of tone. The great masters divined them; Schenker explained them. His Harmony was the first step on the road to discover those principles that a composer follows even in his most audacious moments. His concept of tone as a dynamic entity led to those discoveries. We have seen here but a few manifestations of it. The author hopes that their radical difference has been made clear.

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The Organic Aspect of Fugue
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APPENDIX I. HARMONIC ANALYSIS

Nearly all of the examples given in the Harmony are but a few measures long. Only in the last chapter does Schenker give analyses of complete works. These works, however, are fantasies. No standard kind of work is given in its entirety for analysis. One complete work and one section of a complete work will be analyzed on the following pages. The intent of the analysis of the complete work is to show how Schenker's early theory of Stufen would apply to it. In addition, comparative analyses are included. One is a traditional harmonic analysis, and the other is one which would be representative of the kind of analysis that Schenker might have done at the end of his life. The Stufen are indicated in Roman numerals. The example chosen is "Soldatenmarsch" from Schumann's Album for the Young. The section of a complete work to be analyzed appears on pages 7-8 of this essay. In addition to a harmonic analysis in the framework of Schenker's Harmony, an elementary graphic analysis and explanation will be given in order to demonstrate some of the relationships between his early and later methods of analysis. It should be noted that the most significant change between the two is the presence of the Urlinie. Babbitt points out that the separation of Stufen from voice-leading was the necessary precondition for the Urlinie-Ursatz theory.* This separation also leads to an emphasis on the role of voice-leading in tonal composition which will be explained below. It is only because of his Scale-step theory that Schenker could justify his emphasis on voice-leading and the Urlinie.

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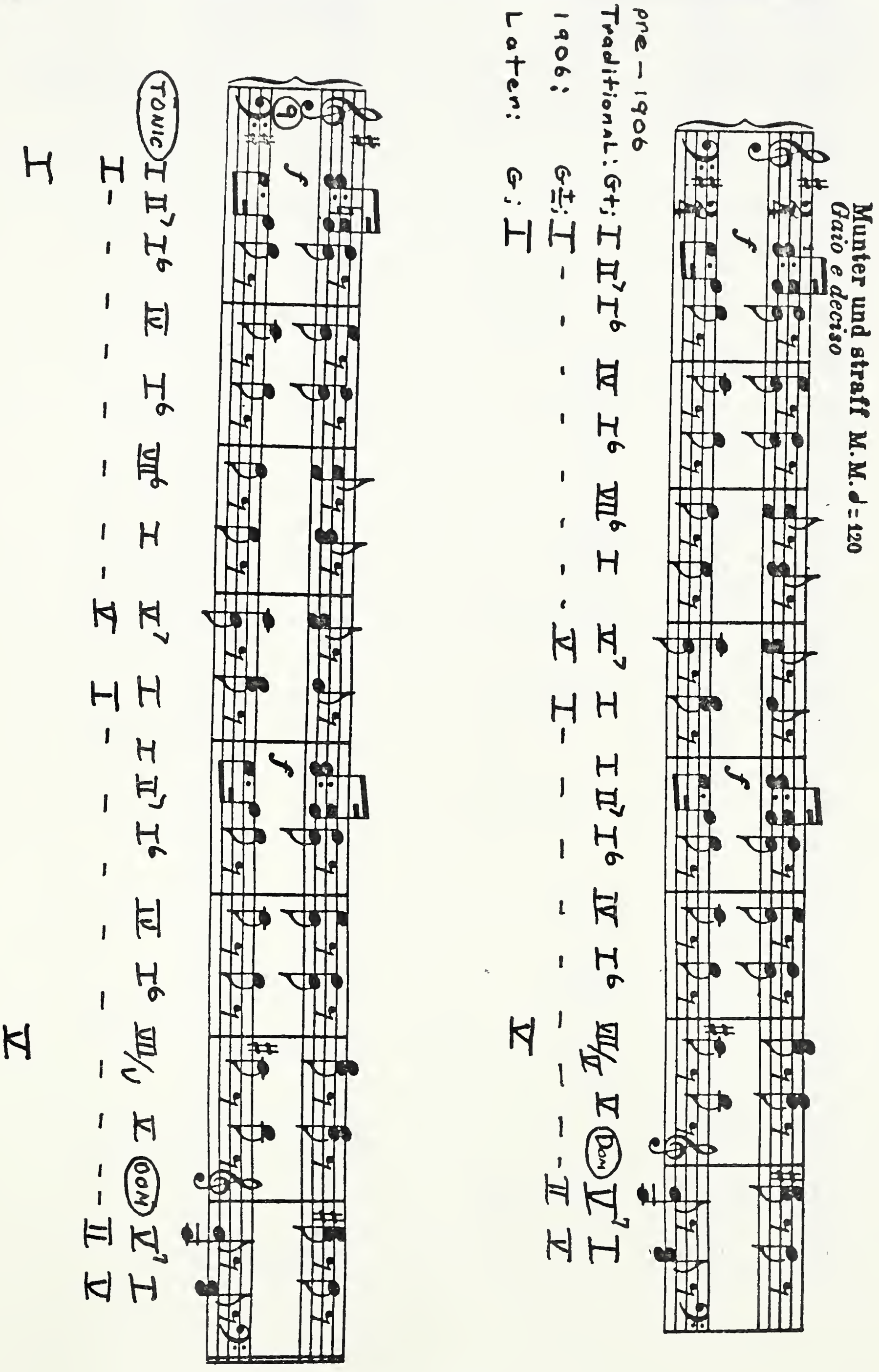
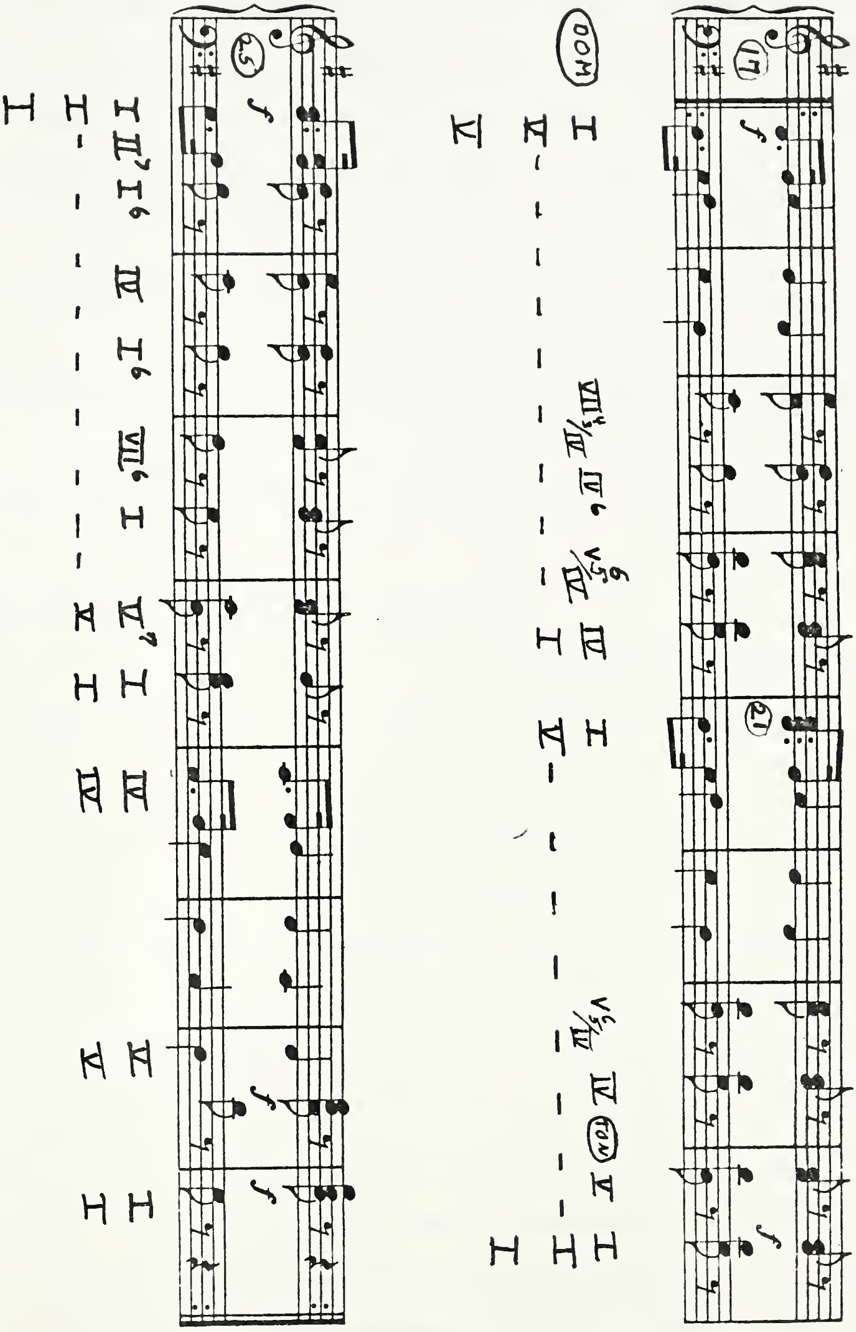
* Milton Babbitt, Review of Structural Hearing by Felix Salzer, in Journal of the American Musicological Society, V (1952) 220-261.

Example A. "Soldatenmarsch" from Schumann's Album for the Young

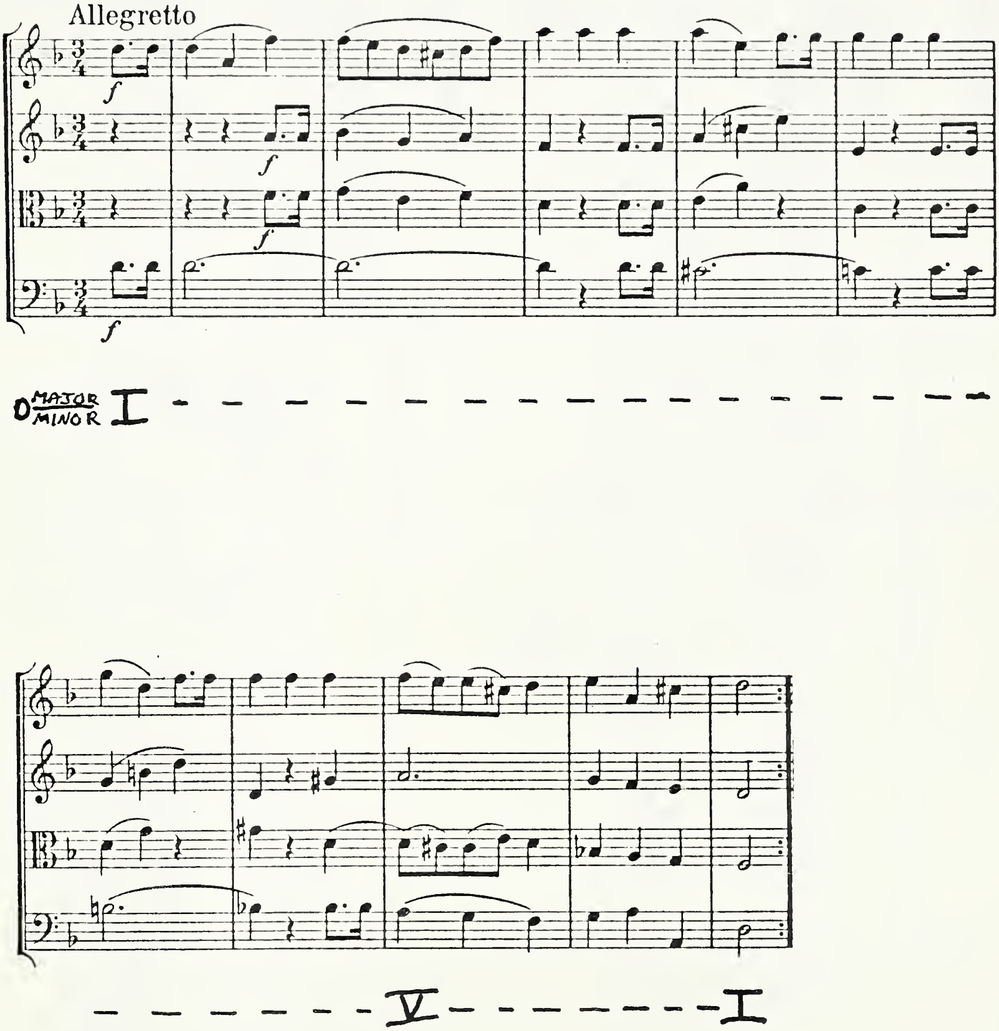

Munter und straff M.M. ♩ = 120
Gaio e deciso
pre-1906
Traditional: G+; I II⁷ I⁶ IV I⁶ VII⁶ I V⁷ I I II⁷ I⁶ IV I⁶ VII/V V DOM V⁷ I
1906: G±; I - - - V I - - - II V
Later: G; I V
TONIC I II⁷ I⁶ IV I⁶ VII⁶ I V⁷ I I II⁷ I⁶ IV I⁶ VII/V V DOM V⁷ I
I - - - V I - - - II V
I V


17
21
MOD
TON
25
f

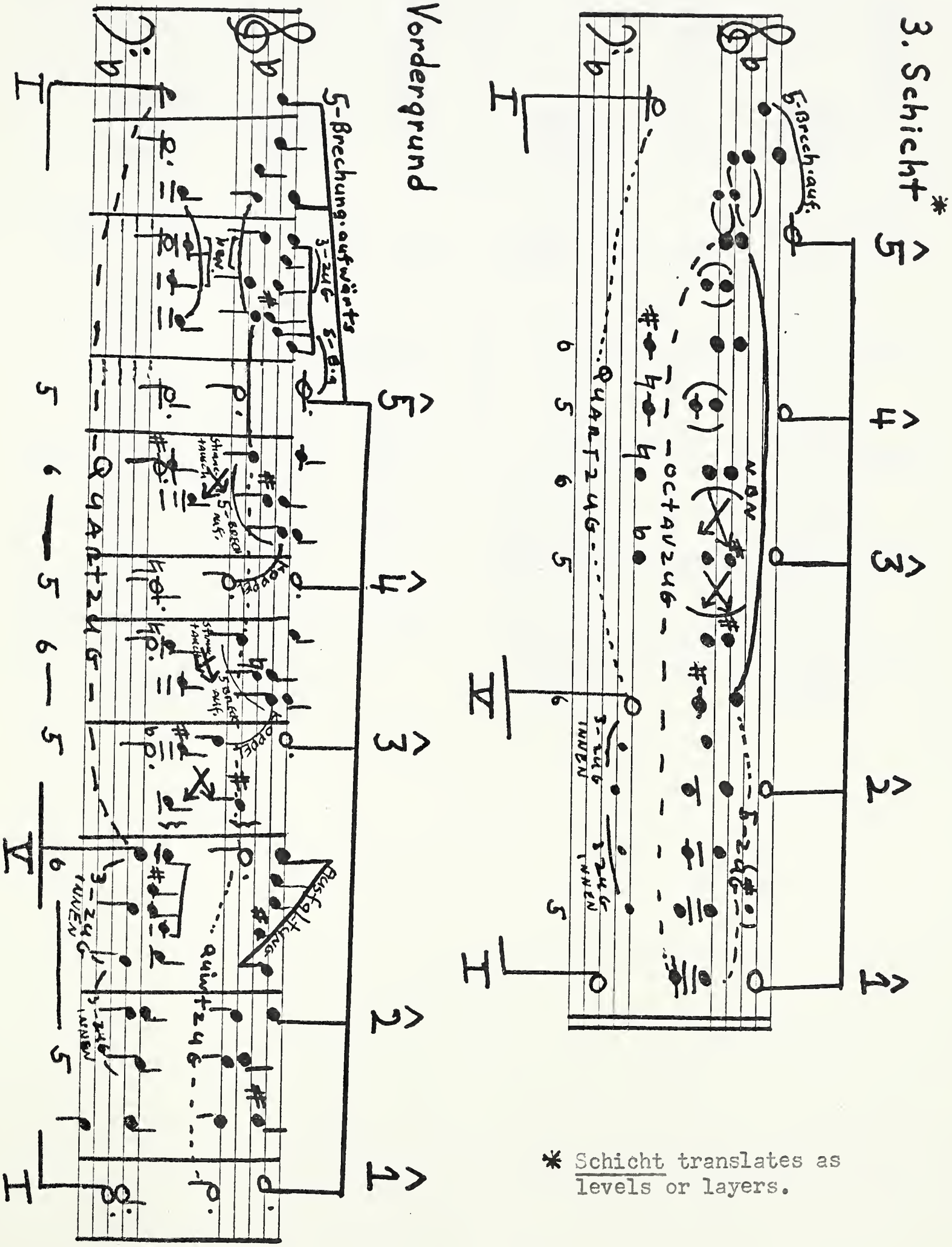
In the three analyses given, a difference can be noted which is similar to the one given at the beginning of Chapter Five. In each successive analysis fewer Scale-steps are given. The first (uppermost) analysis is a traditional harmonic analysis. Every vertical structure is given a Scale-step indication. There are some fifty-eight of them. According to Schenker, only those chords which have structural significance ought to be designated as Stufen. Thus the second analysis, which represents what Schenker probably would have done in 1906, has twenty-two Stufen. In the third analysis, which represents what Schenker might have indicated at a later stage in his development than 1906, even fewer are indicated. Only seven chords would be understood to have structural significance.

Note that in bars 20 and 23 exactly the same sequence and arrangement of tones is heard. Yet the first of the bars has a Scale-step indicate and the second does not (in the 1906 analysis). The "I" chord in bar 20 functions as a focal point of the harmonic activity whereas, in bar 23, the very same chord with the same harmonization and voice distribution does not. Thus the same chord or sequence can have entirely different meanings when placed in a different context. This illustrates very clearly that just because two chords have the same vertical structure, or that just because two passages are identical does not mean function will automatically be the same. "For not every triad must be considered a scale-step; and it is most important to distinguish between [G] as the root tone of a triad and [G] as a scale-step"(pp. 138-139). In other words, function is determined by context.

Example B. "Menuetto" from Mozart's String Quartet, K. 421

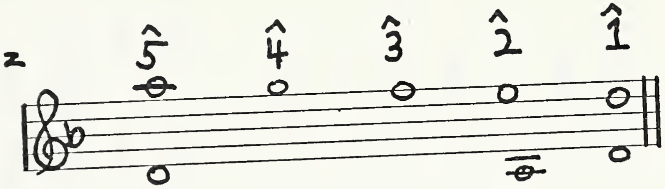


Example C. Graphic Analysis of Example B.

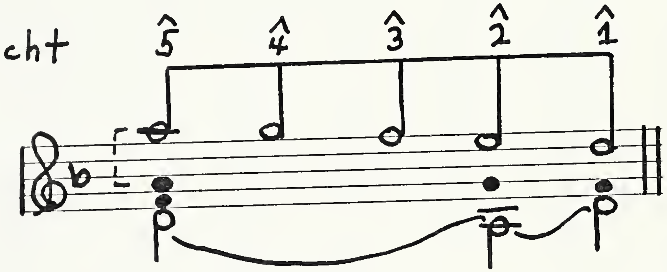


* Schicht translates as levels or layers.

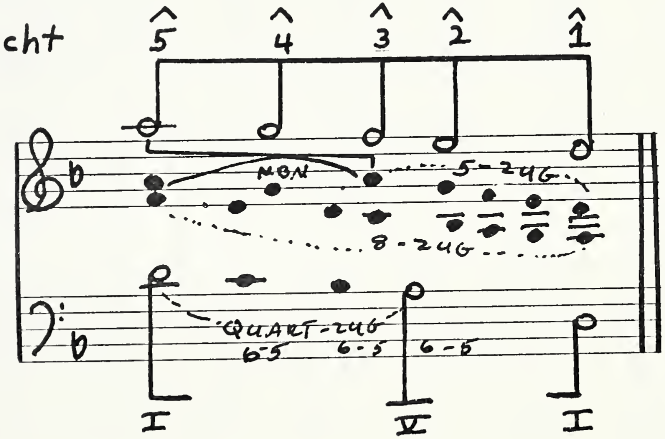
Ursatz



1. Schicht



2. Schicht



Under the score is indicated what Schenker may have given as a harmonic analysis in 1906. It does not differ from what he would have given as a harmonic analysis later than that date. It is much simpler, harmonically, than the analysis given in Chapter Two. Here, only I, V and I are indicated. The complexity in this fragment lies not in the harmony, for Schenker, but in the voice-leading. This is the significant change he brought about in how to understand a tonal composition. It is based on his theory of Stufen in that once the long-range power of the chord as Scale-step is realized, the use of the only other option, voice-leading, to prolong a Scale-step must be recognized. A passage must either contain Stufen, or be subordinated to a Stufe. If it is subordinated, then it can only be the product of voice-leading.

Therefore there are no harmonic indications inbetween the first I chord and the V chord in bar 8. The whole chromatic sequence from the D (in the cello) down to the A is heard as a filling out of that distance of a fourth with passing tones (hence the indication "Quartzug"). The passage has no harmonic function but rather is the product of voice leading. The tenor voice (viola) begins on an F and ends on an F an octave lower. This voice traverses the space of an octave and so is called an "Octavzug." The upper most voice arpeggiates a fifth upwards (hence the indication "5-Brechung•aufwärts") and then descends slowly from the fifth to the first degree. The alto voice begins on A and then in the third last bar descends to the D, imitating the upper voice exactly but in diminution. These are the essential motions of each voice.

In the foreground (*Vordergrund*) the upper voice D leaps to the F (from the A which is a transitory leap) and then having achieved the F falls back down to the D (bar 2) using a subsidiary *3-Zug*, or a span of a third filled in by a passing note. The neighbouring C-sharp is of passing significance. The D to F to A (bars 2-3) present the overall opening motion to the A in diminution. The essential movement from the first note up to the A is imitated in shorter time values by the tones in bars 2-3. This (a) delaying of the achieving of the A, and (b) the diminution give the A, when it is finally arrived at, a great emphasis. The emphasis is far greater than if it had been gone to directly (if bar 2 was omitted), or if the A started the piece.

The upper voice then descends by step even though it is decorated with a transitory leap of a fourth down, carrying through the pattern started in bar 1, for the first two tones. When $\hat{3}$ is reached, instead of being held for two bars, as is $\hat{5}$ and $\hat{4}$, it unfolds the interval of a third by entering into the voice leading strata that should properly be the tenor's. The bass moves in parallel sixths with it showing that it is a linear pattern and not a harmonic progression. When this voice reaches $\hat{2}$, the alto voice begins its diminution. If both voices continued without interruption, then they would move in parallel octaves to the D's. To avoid this, the A-C-sharp is inserted. The $\hat{2}$ holds all the way through but the direct octaves are avoided by this maneuver. This allows the alto to fulfill its diminution unabated. Were it the other way around, the function of the alto voice might have been confounded.

The alto voice is prolonged by a neighbour tone motion. The A in bar 1 is first decorated by an upper and lower neighbouring tone in bar 2. The F in bar 3 is first heard as a transitory leap. It is there to set up the pattern followed in the next few bars. In bar 4, the alto and tenor voices cross. The way this is carried out is not simple. The tenor simply moves up from its E to the alto's A. The alto moves to the tenor's E by an arpeggiation of a fifth up (A-C-sharp-E) and *then* joins with the tenor's E an octave lower. This same pattern is then repeated with the G and the D in bars 6-7. The basic motion for the alto voice is still from A to G. The voice crossings and arpeggiations do not alter this: they extend the motion. In bar 7, the tenor (viola) moves the alto's G up to a G-sharp. The alto then picks the G-sharp up when the voices uncross. Both then continue separately.

The Alto moves from an A to a G, then chromatically to a G-sharp which leads to the A from which it can begin its descent. By means of this complicated voice-leading, arpeggiation and voice crossing, a simple neighbouring tone is prolonged some six bars. Because it established the A in that region very firmly, the alto voice as a diminution of the upper voice is readily apparent.

The point of this analysis is that it is only because so few *Stufen* are indicated that the richness and complexity of the voice-leading can be revealed. Only by indicating a single chord for the first 7 bars, could the the neighbouring tone motion in the alto voice be discovered. And only by doing so could any sense out of the succession of chords be made.

This analysis, and ones done by Schenker, show how polyphonic an era the Classical Era was. More generally, the Ursatz is an inherently polyphonic structure. The two outer voices are counterpoised against each other. This structure, the Ursatz, represents melody against harmony in its purest form. As the Ursatz is the primordial structure for all tonal music, according to Schenker, all music is inherently polyphonic, if it is tonal. To arrive at the concept of Ursatz there must be a base upon which the polyphonic structure is erected. That base is the harmony. It is the fact of a harmonic structure that primarily separates the modal era from the tonal era. It is the fact of a harmonic structure that differentiates the characteristics of the tonal era from the preceeding one(s). Harmonic structure is expressed in terms of Stufen. The early theory of Scale-steps found in Schenker's Harmony was a milestone in the development of an understanding of tonality and the masterworks of the tonal era.

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